



▲ A Filipino Lubag syndrome patient celebrates after being treated at Chang Bing Show Chwan Memorial Hospital in Taiwan's Changhua County.

Medical and Public Health Cooperation & the Development of Industrial Chains

ONE COUNTRY, ONE CENTER

Taiwanese hospitals are tasked with each coordinating cooperation in an assigned partner country to provide medical training, host exchanges, nurture culturally sensitive healthcare environments, and assess local medical regulations and market opportunities:

National Taiwan University Hospital (國立臺灣大學醫學院附設醫院) — **INDONESIA**

National Cheng Kung University Hospital (成大醫院) — **INDIA**

Changhua Christian Hospital (彰化基督教醫院) — **THAILAND**

Chang Gung Memorial Hospital (長庚紀念醫院) — **MALAYSIA**

Hualien Tzu Chi Hospital (花蓮慈濟醫院) — **THE PHILIPPINES**

Taipei Veterans General Hospital-National Yang-Ming University (臺北榮民總醫院-國立陽明大學) — **VIETNAM**

Shinkong Wu Ho-Su Memorial Hospital (新光吳火獅紀念醫院) — **MYANMAR**

IN 2019, the Ministry of Health and Welfare's (MOHW) One Country, One Center program gained its seventh member, Myanmar, less than a year after the program's launch in June 2018.

Under the project, seven Taiwanese medical centers have formed seven medical teams to act as the main coordinator in each assigned partner nation to help integrate local medical resources and deepen medical and healthcare cooperation.

"The program has been lauded in the medical field both domestically and internationally," says Deputy Minister of Health and Welfare Ho Chi-kung (何啓功). "That's why we expanded it to seven countries, because we have proven that this program is the right step for Taiwan and its partner countries."

In a bid to ramp up international collaboration in innovative industries, one of the New Southbound Policy's five flagship projects is geared toward promoting medical and public health cooperation as well as the development of industrial supply-chain links with the partner countries.

The project aims to leverage Taiwan's soft power in healthcare and form stronger ties with New Southbound Policy partner nations by expanding bilateral and regional collaborations, including offering professional training programs, promoting pharmaceutical and health-related industrial supply chains, building a regional disease prevention network, and working toward regulatory harmonization and standardized inspection techniques.

While Taiwan is best known for its universal National Health Insurance System, it is also known for the quality of its medical system and public health network: *CEOWorld's* 2019 Health Care Index ranked the nation the best in the world in terms of overall health-care quality, looking at infrastructure, professional competency, cost, quality, medicine availability and government preparedness. Bloomberg ranked Taiwan in ninth place in its 2018 Health Care Efficiency Index.

Taiwan's medical industry is known not just for its quality and affordable medical care and related products, but also for integrating its cutting-edge information technology capacity with innovative medical management to establish a wide array of smart health solutions.

Taiwan is no stranger to international medical training — in 2002, the health ministry established the Taiwan International Health Training Center, which has since trained 1,500 health professionals from 65 countries. By means of the initiative as well as other medical cooperation programs, Taiwan has collaborated with its Southeast Asian neighbours in areas including epidemic prevention, birth control and treatment of rare diseases even before the New Southbound Policy was implemented.

Amid rapid growth in the partner countries' economies, the scope of cooperation has expanded from a purely medical context to public health planning at government level.

The Ministry of Health and Welfare launched the One Country, One Center program in June 2018 and commissioned the Chung-Hua Institution for Economic Research (中華經濟研究院) and other think tanks to establish the Health and Welfare New Southbound Policy Project Office to assist in coordinating related efforts.



▲ National Taiwan University Hospital, commissioned by the Centers for Disease Control, established the nation's first New Southbound Personnel Health Service Center in August 2018.

The original hospitals and their six assigned nations are:

- National Taiwan University Hospital, serving Indonesia;
- National Cheng Kung University Hospital, serving India;
- Changhua Christian Hospital, serving Thailand;
- Chang Gung Memorial Hospital, serving Malaysia;
- Hualien Tzu Chi Hospital, serving the Philippines;
- and Taipei Veterans General Hospital and National Yang-Ming University, serving Vietnam.

Shinkong Wu Ho-su Memorial Hospital, which has been working closely with Palau, opened up collaboration with Myanmar under the program. In April 2019, hospital director Hou Sheng-mao (侯勝茂) led an extended team to the country, signing memorandums of understanding (MOUs) and setting initial goals of providing opportunities for the disadvantaged to seek medical help in Taiwan, training local medical professionals and setting up a platform for referring patients to Taiwan.

"Our hospital became involved in Myanmar four years ago, but in the capacity of providing free medical services. We hope to export our services wholesale along with our vendors — from medical personnel to information systems, surgical equipment and medical devices — bringing entire industry chains into the market and opening up new economic opportunities," Hou says.

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Director of Shinkong Wu Ho-su Memorial Hospital



▲ The Centers for Disease Control hosts a tuberculosis prevention workshop with health professionals from Vietnam.

The teams have been visiting various hospitals and institutions in their partner countries, exploring their needs and signing MOUs on mutual cooperation and training in specific fields. Changhua Christian Hospital, for example, has been helping Thailand set up a smart medical system in accordance with the Thailand 4.0 economic model, donating and demonstrating appropriate equipment to the Bangkok Christian Hospital and Overbrook Hospital in December 2018, in addition to other ventures.

The hospitals have provided medical personnel training programs, offered health consultation services for Taiwanese expats, and studied the local markets and health-related regulations to customize feasible cooperation models and find business opportunities in each nation.

Other cooperation projects are taking place outside of the One Country One Center system. In accordance with the World Health Assembly's emphasis on global surgery, Taiwan had trained 21 seed practitioners from nine countries as of December 2018. The government also opened local hospitals to training foreign medical professionals, with 301 participants in 2018. In December 2018, the National Kidney and Transplant Institute in the Philippines

sent two doctors, two registered nurses and two anaesthetists to undergo a 12-day extracorporeal membrane oxygenation (ECMO) training workshop at National Taiwan University Hospital.

Collaborations with the US through the Global Cooperation Training Framework also include the medical field. In April 2018, the two nations hosted the International Training Workshop on Laboratory Diagnosis for Enterovirus, inviting lab professionals from 15 countries, 11 of them New Southbound Policy partners.

In accordance with the WHO target of eliminating tuberculosis by 2035, the two countries co-organized the Workshop on the Programmatic Management of Drug-Resistant Tuberculosis in April 2019, which included experts from five New Southbound Policy partners.

"Taiwan has much to contribute in advancing efforts to combat infectious diseases and many other international health concerns," American Institute in Taiwan Director Brent Christensen says.

In June 2018, Taiwan's Centers for Disease Control (CDC) presented a four-week Tuberculosis Control and Prevention Workshop under the New Southbound Policy for 26 health officials and professionals

DURING THE TAIWAN EXPO in Vietnam in August 2019, most of the questions directed at the New Southbound Policy Office were about medical tourism to Taiwan — last year, the number of patients from partner countries who visited Taiwan for medical treatment exceeded 150,000, accounting for 38 percent of the number of international patients visiting Taiwan, up 50 percent from two years earlier.

from Quảng Ninh Province in Vietnam. In addition to engaging in exchanges in which participants compared practices in different countries with local public health officials and medical experts, they also visited a local face mask factory and met with tuberculosis drug manufacturers.

The workshop was presented again in 2019, when participants visited the Taipei Municipal Wanfang Hospital to learn about the Taiwan Multi-drug-resistant Tuberculosis Consortium. They then toured the Center for Research, Diagnostics and Vaccine Development as well as the MOHW's

Chest Hospital. In turn, the CDC visited Vietnam for field training in September 2018 and March 2019.

It is estimated that 3.9 billion people around the world are at risk of infection with dengue viruses, and 70 percent of the number of at-risk people reside in Southeast Asia and the Western Pacific region. Many dengue fever cases reported in Taiwan are imported from Southeast Asia, with between 8 and 31 percent of them acquiring the disease in Indonesia over the past four years.

In 2018, the CDC initiated the New Southbound Dengue Prevention and Control Collabo-



▲ The Centers for Disease Control presented a week-long dengue fever prevention workshop for Indonesian health professionals.

ration Program, first focusing on Indonesia. The program aims to boost exchanges and provide technical training courses that suit Indonesia's needs, as well as promote community-based disease prevention practices to enhance regional capacity and reduce the threat of cross-border outbreaks.

In October 2018 and March 2019, the CDC hosted two technical training workshops on dengue control, inviting practitioners from prevention and control agencies in Indonesia.

Taiwan has also been looking at expanding opportunities for traditional medical practices, especially with India, which has a ministry dedicated to alternative and traditional medicines. In October 2018, China Medical University hosted the Taiwan-India Symposium on Traditional Medicine, and in July 2019, representatives from the Ministry of Health and Welfare's Department of Chinese Medicine and Pharmacy visited India to explore collaborative opportunities with the government regarding traditional Indian medicine. India can share its expertise in research into plants with pharmaceutical value, while Taiwan can provide data analysis and clinical expertise.

Translation skills are also vital in an increasingly global medical field. In August 2019, the health ministry announced that, in addition to translators to help market medical products and services, it would start offering training classes for hospital translators, with Vietnamese as priority.

The Centers for Disease Control in August commissioned National Taiwan University Hospital to establish the nation's first New Southbound Personnel Health Service Center. The center specializes in providing comprehensive services, including health checkups, infectious disease consultation and vaccination, chronic disease care and a hotline for people

travelling to partner nations.

The Ministry of Health and Welfare has been encouraging local medical industry vendors to make use of Taiwan's increased presence through the New Southbound Policy to bring their products and technology to partner countries.

A major avenue is the Taiwan Expo (台灣形象展) held in New Southbound Policy partner countries, which includes a pavilion for smart medical services and technology at each expo. More than 1,600 enterprises participated in nine of these expos in India, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam in 2017 and 2018, which attracted a total of more than 210,000 visitors and created business worth more than US\$630 million. Five more are scheduled for 2019.

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One of the discussion forums at the Vietnam event focused on Taiwan's smart healthcare industry, where companies had the opportunity to present products such as telecare and smart hospital wards.

Taiwan Healthcare+ was established under the New Southbound Policy as an international trade platform for Taiwanese medical services, technology and biotechnology companies. It held its first expo in 2017, and the 2019 event in December is set to feature over 500 hospitals and vendors from 17 countries, with countless networking and business opportunities. ■



▲ Taiwan External Trade Development Council (TAITRA, 外貿協會) Chairman James Huang (黃志芳), third left, expanded the Taiwan Expo to India in 2018.

Environmental Protection

IN OCTOBER 2018, JANE NISHIDA,

principal deputy assistant administrator at the US Environmental Protection Agency, lauded Taiwan's achievements in environmental protection as a source of inspiration for countries in the Asia-Pacific region.

Taiwan has made great strides in tackling environmental issues over the past 25 years, achieving significant results in water, air pollution and electronic waste management, Nishida says.

The government's recent "5+2" innovative industries initiative stresses the need for a circular economy and green energy, aiming to generate 20 percent of Taiwan's electrical power from renewable energy sources by 2025.

"The development experiences of Taiwan over the past two years demonstrate that economic growth can go hand in hand with environmental protection and sustainability," President Tsai Ing-wen (蔡英文) said at an exhibition on the circular economy exhibition opening in September 2018.

In 1993, the trash collection rate in Taiwan was just 70 percent, with virtually zero recycling mechanisms. In just 25 years, the government has built one of the world's most efficient recycling systems, with a recycling rate of 60 percent in 2018 — one of the highest in the world, including a plastic bottle recycling rate of 95 percent. In 2018, Taiwan banned handing out free plastic bags in most stores, and in 2019 it began restricting the use of single-use plastic straws. The government doesn't plan to stop at that, setting an ambitious goal of completely banning single-use plastic cups, straws, utensils and bags by 2030.

▲ A bird rests in the Taipei Botanic Garden, the first institution in Taiwan dedicated to conserving plant diversity.

“Perhaps, with plastic production showing no sign of diminishing and economic growth inextricably linked to waste generation, rising economies might look at Taiwan before issues with their own garbage get out of control,” an article on Taiwan’s recycling industry in the *Smithsonian Magazine* states.

This is exactly the role Taiwan’s Environmental Protection Administration (EPA) has been aiming for through the New Southbound Policy, which partners with several rising economies. As Taiwan’s own economy skyrocketed in the 1970s and 1980s, it had to deal with many of the serious environmental woes its partners are wrestling with today. Taiwan’s decades of policy, regulations, technology, services, maintenance and innovation can all serve as assets to connect with and benefit its partner countries.

An article by the Taiwan Environmental Information Center from a regional air pollution policy workshop in 2018 states: “The New Southbound Policy should not be exporting polluting industries, but environmental protection talent and green businesses.” Rapid economic development, population growth and region-wide social inequalities in South and Southeast Asian countries have led to environmental problems that threaten the future of the region, but the good news is environmental aware-

ness is growing in these nations, with their respective governments taking significant steps in environmental policy.

For example, as the second-largest polluter of the world’s oceans, Indonesia in March 2017 pledged US\$1 billion to reduce 70 percent of its ocean waste by 2025. In June 2019, the island of Bali banned the use of single-use plastics, and two weeks later the Indonesian government imposed a nationwide tax on plastic bags. India is also moving forward with its bans on single-use plastic items, aiming to phase them out completely by 2022.

Regional efforts are gaining steam — in June 2018, the Association of Southeast Asian Nations (ASEAN) launched a collaborative marine protection project, while in July 2019, the bloc of nations launched a High-Level Dialogue on Environment and Climate Change with the European Union.

One avenue through which Taiwan has been sharing its expertise with countries across Asia is the International Environmental Partnership (IEP), a collaboration between the US’ Environmental Protection Agency and Taiwan’s Environmental Protection Administration launched in 2014.

An increasing number of IEP events are being held in New Southbound Policy partner nations, such as the International E-Waste Management Network



▲ Department of Waste Management Director-General Lai Ying-ying (賴瑩瑩) demonstrates a fountain pen made of recycled materials in Taipei on Sept. 16, 2019.

AT the 2019 Air Quality Management Policy Development Workshop in Taiwan, the EPA handed over 100 Taiwan-made air pollution detection kits to Vietnam’s Environmental Administration. Taiwan had also provided mercury pollution testing equipment and know-how to Sri Lanka in 2018.



▲ Taiwan hosts an air quality improvement conference with delegates from the Indo-Pacific region.

Workshop in Jakarta in October 2017 and Manila in September 2018. The 2019 Asia-Pacific Mercury Monitoring Network Partners Meeting took place in Jakarta, and Taiwan’s Bureau of Environmental Inspection shared its expertise and experience with Vietnamese natural resource officials during a five-day workshop in May 2019.

In July 2019, the IEP organized an Air Quality Management Policy Development Workshop in Taiwan, with participants from New Southbound Policy partner countries. They deliberated topics ranging from funding sources to management for air pollution mitigation and regulation of mobile pollution sources. The visitors toured pollution control facilities in Taiwanese factories and learned about the government’s regulation system.

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Exchanges outside the IEP are fruitful as well, such as when the EPA partnered with the Asian Productivity Organization to send Taiwanese e-waste and recycling professionals and experts to Thailand in October 2018 to gain first-hand experience of their existing methods and needs.

The EPA has also launched programs for student exchanges, for instance partnering with National Dong Hwa University’s Vietnam-Taiwan Research Institute in August 2019 to send 12 environmental education ambassadors to Vietnam to interact and exchange ideas with their counterparts there.

“The goal is for students from different social and cultural backgrounds to engage in discussion and exchanges regarding environmental issues,” says Wu Pei-yu (吳珮瑜), deputy director-general of the EPA’s Department of Comprehensive Planning. “We hope to encourage the younger generation to participate in such issues.”



▲ A Filipino inventor volunteering for the Tzu Chi Foundation in Taiwan devised a way to turn the non-recyclable plastic layer in paper boxes and cups into floor tiles.

“It’s environmental diplomacy,” EPA Deputy Director Tsai Hung-teh (蔡鴻德) says. “Taiwan is well-equipped to play the role of a regional technical center, research center and training center. Many of our visitors are potential high-ranking government officials, and these exchanges will allow them to develop closer relations with Taiwan. We help their environment while we gain friends and create more opportunities for our green industries.”

Through these exchanges, Tsai says Taiwan also learns about the pressing needs of each partner country, so it knows what expertise it can offer.

The EPA should share Taiwan’s extensive experience and expertise in each area, starting from its environmental regulatory framework, Tsai says.

Having relative regional unity in rules and regulations will make it easier for Taiwanese environmental engineering firms and green businesses to move into the New Southbound Policy market, Tsai adds.

General policy dialogues have included the 2017 South-east Asian Environmental Forum, where high-level officials and experts from nine countries convened with about 200 Taiwanese environmental professionals in Taipei. The discussion focused on how Taiwan can export its expertise to help with the region’s emerging environmental policies, as well as the environmental challenges Taiwanese enterprises face through their operations in the region and how they can play a larger role. Taiwan hosted its first Environmental

Protection and Management Forum with Vietnam in July 2018.

Tsai says that many partner countries are in need of waste management solutions. For example, Jakarta launched its first incinerator project in December 2018, which will convert trash into electricity. Taiwan already has abundant experience in the field, having built 24 incinerators between 1987 and 2003.

Tsai stresses that just using incinerators to burn trash is not enough to meet the EPA’s vision — the energy produced should be used to generate more value such as electricity or for heating water, just like Jakarta’s project.

Taiwan cannot just help these countries build incinerators, though, since most garbage can be recycled instead of burned. Since Taiwan is also experienced in recycling, Tsai says it should impart its know-how in a way that creates industry value. This will produce a whole Southbound ecosystem of connected services that Taiwan can export as a whole.

“We’re not just exporting one thing at a time,” Tsai says. “It’s an integrated supply chain.”

Nanoplus Tech, whose diverse services include green technology, provides a prime example — it signed a memorandum of understanding with Vietnam-based SPT Telecoms in May 2018 to establish a joint venture that would establish a “circular economy research park” that would cover landfills, incinerators, recycling and turning recyclables into commercial or industrial products. This creates a whole supply chain of opportunities for other enterprises and organizations as well, maximizing the value of the venture.

Enrestec is also a model of creating maximum value out of recycling — the Taiwanese firm has a one-of-a-kind, minimal pollution pyrolysis method that completely recycles car tires into useful materials such as black carbon, fuel oil and steel wire. Recently, it has exported its entire system to Sheico Group’s production plant in Thailand, where it will provide EU-certified non-toxic black carbon for the world’s largest wetsuit manufacturer.

These endeavours are not just economic success stories for Taiwan, but also showcase the nation’s environmental prowess while providing and promoting greener solutions for its partner countries. Tsai says the importance and the value of recycling should be imparted early — that way the factories can design products that are easily reusable, instead of, for instance, producing bottles that have different recycling categories for the cap, body and wrapper.

These innovative ventures mark the trend for part of Taiwan’s lucrative environmental protection industry, which grew from 5,789 businesses in 2006 to 9,432 in 2016. As the nation starts to focus on a circular economy and sustainable development, the

green industry is also moving in that direction with widely expanded applications and ever-improving technology.

The number of registered recycling companies in Taiwan has jumped from 100 to nearly 2,000 in just a decade. These companies have mostly shed their shabby junkyard image, with innovative and lucrative businesses thriving.

One of these is Spring Pool Glass (春池玻璃), which recycles glass into eco-friendly building materials, household products and art pieces. The company takes in about 100 million kilograms of discarded glass per year, contributing significantly to Taiwan’s second-place ranking in the world in terms of its glass recycling rate.

In 2016, President Tsai called Spring Pool Glass a model New Southbound Policy business, noting that it combined tradition with innovation and fits well with the government’s push for a green and circular economy.

As environmental awareness grows in Southeast Asia, Spring Pool has been an eager participant at numerous Taiwan Expos (台灣形象展) to New Southbound Policy partner countries. More than 1,600 enterprises participated in nine of these expos in India, Indonesia, Vietnam, Malaysia, the Philippines and Thailand in 2017 and 2018, which attracted a total of more than 210,000 visitors and created US\$630 million worth of business.

Five expos are scheduled for 2019. Each of these Taiwan Expos features a green pavilion, with platforms that promote Taiwanese services and products that specifically cater to the environmental needs of the host country. The event headed to India for the first time in May 2018, where its green pavilion presented the themes of “providing India with green solutions to build smart cities,” “helping India solve environmental problems that arise from population growth and economic development,” and “waste reuse and green living.”

Through the expos, Spring Pool has expanded its market into Singapore and its Southeast Asian neighbours, and has also begun to make headway in India.

With this comprehensive environmental push in New Southbound Policy partner countries between official and commercial avenues, and the rapid shifting of global trends toward green solutions and Industry 4.0 — which prioritizes green manufacturing — coupled with South and Southeast Asian countries’ desire to clean up the environment, the opportunities will only increase for Taiwan and its partner countries.

“All of these elements will eventually fall into place,” Tsai says. “But the most important thing is to do it with a genuine intention to improve the environment of our partner countries. ■



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