Vietnam and U.S. Science and Technology Collaboration:

20 Years After Normalization

By Tran Ngoc Ca and Jesse J.K. Szeto

Since U.S. President Bill Clinton announced the normalization of ties between the U.S. and Vietnam on July 11, 1995, scientific and research collaboration between the two countries has increased dramatically. Even before diplomatic normalization, science and technology cooperation between the two countries was reinitiated in the 1980s through the US Committee for Science Cooperation with Vietnam and Laos, which was headed by the late Judy Ladinsky, a professor from the University of Wisconsin-Madison. However, the level of collaboration has substantially increased in just the past 7 years: in 2008, there was a total of 5 U.S. federal grants and 2 sub-grants to Vietnamese organizations. In contrast, by 2014, those numbers had increased to 60 grants and 29 sub-grants. In all, from 2008-2015, there has been a total of 249 grants and 140 sub-grants to Vietnamese organizations, totaling $115 million (see Chart 1). As Table 1 indicates, four federal agencies accounted for more than 95 percent of these grants and sub-grants: DHHS, USAID, Department of State, and Department of Defense. The predominance of health-related projects is even clearer in Table 2 which shows that 16 of the top 20 recipients of U.S. federal grants and sub-grants in Vietnam are to health-related organizations such as the Vietnam Administration for HIV/AIDS Control, the Ho Chi Minh City AIDS Committee, and the National Institute of Hygiene and Epidemiology.

In addition, more than 16,000 students and scholars from Vietnam currently study in the U.S., and since 2000, the two countries have signed a Bilateral Agreement on Science & Technology Cooperation, paving the way for the dramatic increase in scientific collaboration and setting up the infrastructure to further deepen STI (Science, Technology, and Innovation) ties. One result of this has been a Joint Committee Meeting (JCM) that is held once every two years to bring together scientific and diplomatic stakeholders from both countries to focus on potential areas of collaboration as well as to report on the progress on current joint projects. In fact, the 8th JCM was held in Washington, DC, in 2013 and included working groups on the following topics:

- Biotechnology and agriculture
- Healthcare and medical
- STEM education and research exchange
- Conservation sciences
- Hydrology, meteorology, and storm forecasting
- Public, private, community partnerships to facilitate science and technology innovation

In addition to the formal working groups, a discussion group on space sciences and technology was also held. This year, which marks the 20th anniversary of diplomatic normalization between the two countries, Vietnam will host the 9th JCM in Ho Chi Minh City.

Among the key pillars for research and higher education collaboration between the U.S. and Vietnam is the Vietnam Education Foundation (VEF), which was created by the U.S. Congress in 2000 for the purpose of building a closer relationship between the two countries and helping Vietnam build excellence in science and technology through educational exchange. Funded at $5 million annually until 2018, VEF supports 3 different exchange programs:

1. Fellowships for Vietnamese citizens pursuing graduate degrees in the U.S.
2. Visiting Scholar grants for Vietnamese citizens to receive post-doctoral training in the U.S.
3. U.S. Faculty Scholar grants for U.S. professors to teach at Vietnamese academic institutions.

More than a hundred U.S. universities have signed memoranda of understanding with VEF, including the largest U.S. research universities, and more than 30 Vietnamese universities, including the top universities in the country, are a part of the VEF alliance.

While no Vietnamese university is among the list of top 20 Vietnamese recipients of U.S. federal grants or sub-grants in Table 2, a growing number of Vietnamese universities have been quite successful at collaborating with U.S. universities and / or in applying directly for U.S. federal grants, including six universities that received more than $100,000 in combined grants/sub-grants between 2008-2015 (see Table 3).

One example of the longest-standing and most robust collaborations has been a multi-faceted collaboration between the University of California, Los Angeles (UCLA) and the Vietnam National University – Ho Chi Minh City (VNU-HCM). Starting with a Master Affiliation Agreement in 2011, which paved the way to establishing the Molecular and Nanoarchitecture (MANAR) Research Center between the two universities and with the University of California, Berkeley, as a third partner, the collaboration has since expanded to include the Center for Global Mentoring (CGM) and the Jonsson Comprehensive Cancer Center (JCCC)-VNU collaboration on cancer.

MANAR's mission is to create world-class nanomaterials research capability at VNU-HCM and eventually in Vietnam as a whole through mentorship programs for young Vietnamese scientists to work with world-class nanomaterials research groups at UCLA and UC Berkeley. By 2012, this had resulted in a $3.2 million MANAR Center at VNU-HCM that will support a PhD program in nanomaterials there, focusing on applying nanomaterials to energy and environmental uses, including natural gas purification, storage, and conversion and solar energy systems. The Center for Global Mentoring (CGM) focuses on training VNU-HCM biomedical students in advanced biology and chemistry through a new biomedical degree program that integrates a 2-year training period at a UCLA biomedical lab. In addition to their own training, the CGM program equips the students to provide further mentoring training after returning to Vietnam, thus ensuring the sustainability and expansion of high-level biomedical mentoring in Vietnamese universities.

Vietnam National University - Ho Chi Minh City (VNU-HCM)

The JCCC-VNU cancer collaboration is the newest and arguably most ambitious collaboration to date between UCLA and VNU-HCM. Cancer levels and morbidity rates in Vietnam are quite high (73% death rate), and as a result, VNU has developed strengths in certain types of cancer (liver, cervical, stomach) as well as research in cancer stem cells and immune therapy. JCCC's strengths are in translational science, cancer prevention and screening, and cancer therapy. Beginning with a comprehensive approach for liver cancer and cervical cancer, the collaboration will be a model for establishing biomedical research and training, will establish comprehensive cancer research and therapy, and will contribute to a better understanding of cancer prevention for the Asian American population in the U.S. The long-term goals will be to expand cancer research collaboration to other Southeast Asian countries, to establish a Nanocancer Asia-Pacific Network (including cancer research centers in Vietnam, the U.S., China, Japan, and Korea), and to pursue virus

Table 1: U.S. Federal Grants / Subgrants to Vietnamese Universities (2008-2015)

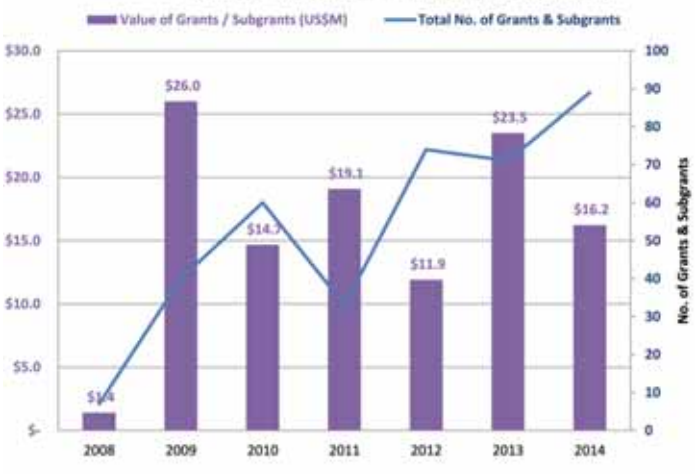
U.S. Federal Agencies	Total Grant/Subgrant Amounts	No. of Grants/Subgrants
Department of Health and Human Services	$92,754,942	140
U.S. Agency for International Development	$12,780,118	92
Department of State	$5,532,768	102
Department of Defense	$3,070,887	42
Department of the Interior	$476,702	10
Department of Agriculture	$365,550	2
Environmental Protection Agency	$150,000	1
Grand Total	$115,130,967	389

infection in cancer as a promising avenue in cancer research.

As Vietnam's cancer research capabilities have expanded, its research institutes and universities are successfully pursuing additional partnerships with U.S. cancer institutes. The University of Texas MD Anderson Cancer Center (MDACC), consistently the top-ranked cancer center in the U.S., has agreed in principle to collaborate with the Vietnam Academy of Science and Technology, VNU-HCM, and the Ministry of Health (National Hospital for Cancer) in order to help develop national oncology action plans while also disseminating best practices through its cancer cell signaling course to provide Vietnamese scientists with the latest advances in cancer treatment, research, and prevention. Though in its early stages, the partnership will eventually lead to the creation of a sister institute to MDACC in Vietnam to promote cancer prevention and education, and to improve cancer treatment, diagnosis, and research in Vietnam.

Another major collaboration between the U.S. and Vietnam is the Higher Engineering Education Alliance Program (HEEAP), which was established in 2010 through a partnership of Arizona State University, Intel Corporation, and the U.S. Agency for International Development (USAID). Seeded by the three original partners at $5 million, the project has since expanded to $40 million through additional partners such as Siemens, National Instruments, and Cadence. The purpose of the program is to modernize the top engineering and technical vocational universities in Vietnam through developing experienced university leadership, constructing innovative and effective curriculum, and promoting university engagement. Through faculty workshops, offered at Arizona State University and abroad, HEEAP is enhancing traditional theory-based engineering and technical vocational programs by advocating the addition of applied and hands-on instructional approaches. The results will be work-ready Vietnamese engineering graduates who possess the applied and technical communication skills required to excel in multinational corporations.

Chart 1: **U.S. Federal Grants & Subgrants to Vietnam**



The above is just a sampling of the types of cooperation that have flourished in the fields of health and engineering. In fact, Vietnamese and U.S. research collaboration has expanded into a number of other fields, too, such as agriculture, environmental and conservation sciences, and marine sciences. As an example, the Agriculture Genetics Institute (AGI), under Vietnam's Ministry of Agriculture and Rural Development, developed a

Table 2: Top 20 Recipients of U.S. Federal Grants / Subgrants in Vietnam (2008-2015)

Vietnamese Organizations	Total Grant/Subgrant Amounts	Total No. of Grants/Subgrants
Vietnam Administration for HIV/AIDS Control	$49,139,808	7
Ho Chi Minh City AIDS Committee	$21,119,749	5
Natl Institute of Hygiene and Epidemiology	$5,694,072	24
Hanoi School of Public Health	$2,443,570	7
Vietnam National Lung Hospital	$1,782,950	16
Vietnam Department of Animal Health	$1,763,519	7
Pasteur Institute of Ho Chi Minh	$1,656,995	3
Peace Trees Vietnam	$1,523,719	7
Center for Community Health Research and Development	$1,370,000	3
Pacific Scientific and Technical Joint Stock	$1,335,160	1
Ministry Of Labor/Invalids/Social Affairs	$1,321,025	7
Ho Chi Minh PAC	$1,169,315	3
Vietnam Chamber of Commerce and Industry	$1,050,000	4
Institute for Preventative Medicine	$856,458	5
Hanoi Center for HIV/AIDS Prevention and Control	$774,032	4
Dien Bien Provincial AIDS Center	$768,796	5
Hue Monuments Conservation Centre	$729,084	2
Pasteur Institute	$725,000	2
Quang Ninh Provincial AIDS Center	$693,608	6
Ministry Of Health, Vietnam	$690,000	2

Table 3: U.S. Federal Grants / Subgrants to Vietnamese Universities (2008-2015)

Vietnamese Universities	Total Grant/ Subgrant Amounts	No. of Grants/Subgrants
Hanoi Medical University	$660,838	6
University of Science Vietnam National University-Ho Chi Minh City	$421,426	10
University of Medicine and Pharmacy	$172,118	2
Vietnam National University	$160,380	10
Tan Tao University	$120,000	2
International University of Vietnam National	$115,000	6
University of Economics and Law-Vietnam National University-Ho Chi Minh City	$86,248	2
Thai Nguyen University Learning Resource Center	$59,990	1
Vietnam National University, School of Education	$42,568	1
Tay Bac University	$29,890	1
Vinh University	$27,969	1
Hanoi University of Science and Technology	$10,000	1
Ho Chi Minh City University of Technology	<$10,000	1
Hong Duc University	<$10,000	1
Ton Duc Thang University	<$10,000	2
Can Tho University	<$10,000	1
Ho Chi Minh City University of Pedagogy	<$10,000	1
Vietnamese Language Center - Hanoi University	<$10,000	1
Quang Nam University	<$10,000	1
Nha Trang University	<$10,000	1
Hoa Sen University	<$10,000	2
Binh Duong University	<$10,000	1
Thai Nguyen University	<$10,000	1
Grand Total	$1,938,698	56

range of joint research labs and agreements with U.S. partners such as the Danforth Center and the University of Missouri.

Overall, it is apparent that the 20 years of normalization have yielded a number of important scientific collaborations that will benefit both the U.S. and Vietnam and their respective populations. It is also clear that while diplomatic normalization is an essential building block to scientific partnerships, successful collaborations are predicated on trust, the availability of funding, and dedicated scientists and research administrators in both countries who were willing to believe in the blossoming of science diplomacy in the wake of normal diplomacy and were willing to wade through the regulatory changes and establish new contract terms and agreements that were acceptable to the pioneering collaborators. While every bilateral relationship has its own idiosyncrasies, it is possible to ascertain some patterns and much cause for hope for the eventual establishment and expansion of U.S. research collaboration with researchers in Myanmar, Cuba, and perhaps someday Iran and North Korea. N

Additional Resources:

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