PROFESSIONAL PAGES

OPPORTUNITIES FOR INTERNATIONAL RESEARCH COLLABORATION IN WOOD SCIENCE AND TECHNOLOGY

Chung-Yun Hse

Comments on receipt of the 2012 Distinguished Service Award
Research Forest Products Technologist
Utilization of Southern Forest Resources
Southern Research Station, USDA Forest Service
2500 Shreveport Hwy
Pineville, LA 71360
E-mail: chse@fs.fed.us

In 2008, SWST moved to hold their annual convention alternatively between North America and international locations. Soon thereafter, we are here in China for the 2012 SWST annual meeting. Although I was born in Taiwan, which is located some 112 miles off the southeastern coast of China across the Taiwan Strait, people on both sides of the Taiwan Strait are all recognized and united as Chinese; so I take this opportunity to welcome you to this great capital city of Beijing.

It is an incredible honor for me to receive SWST's 2012 Distinguish Service Award, and I am very grateful and humbled. When Ms. Vicki Herian informed me of this honor in August, it was beyond my wildest dream that I would be so honored in Beijing, China. I was also told to prepare to say something wise about SWST and my research career. I have spent my entire research career at Pineville, LA. This location has several advantages and disadvantages. As a young scientist, to avoid any feelings of isolation caused by working in a small laboratory located in a small town, I worked to establish collaborative projects with an international network of colleagues. Indeed, looking back over the past 40 yr at Pineville, a significant portion of my research projects have involved such collaborations, and they certainly have benefited my professional career and added great satisfaction and excitement. International research collaborations are nothing new. Most established researchers will have built a network of friends and colleagues acquired over time to work together on projects, books, or papers. Nevertheless, I have been very fortunate to have had many good opportunities that enabled me to develop productive international research collaborations. I am here today to share with you about three opportunities of international research collaborations that turned into success stories.

The US Forest Service Southern Research Station's Utilization of Southern Forest Resources laboratory at Pineville, LA, has developed a reputation for strong international research collaboration programs since the laboratory was formed in 1961 with Dr. Peter Koch as the project leader. I had the opportunity to work on Dr. Koch's project on gluing of southern pine plywood in the summer of 1963 as a student, and a few years later, in 1967, I ended up working as a junior scientist at the Pineville laboratory. My research career has grown and been enriched with the international projects undertaken in the laboratory over the years.

In 1983, I was invited to serve as a consultant to the FAO–United Nations Development Program (FAO/UNDP) in China to consult on complete tree utilization of plantation forests. This FAO/UNDP project was significant because funding was provided by FAO/UNDP. This visit together with three subsequent FAO/UNDP visits (1986, 1990, and 1994) resulted in the development of long-lasting scientific exchanges and research

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collaboration programs in wood science and technology between several Chinese universities and research institutes with the Southern Research Station. For example:

- 45 Chinese visiting scientists have participated in research at the Pineville laboratory for a period of 6 mo to 2 yr since 1985.
- 21 research visits by scientists from Pineville to China since 1983.
- 12 cooperative research agreements between China and the Southern Research Station.
- More than 200 short-term visitors (1 to 7 da) from China have visited the Pineville laboratory.
- Two joint international symposia were held in China (International Symposium on Adhesive Technology and Bonded Tropical Wood Products, Taipei, Taiwan, 1993; International Symposium on Utilization of Agricultural and Forestry Residues, Nanjing, China, 2001; and International Symposium on Biomass Science and Technology for Bio-Based products, Beijing, China, 2007).
- Establishment of a Memorandum of Understanding (MOU) among the USDA Forest Service, Southern Research Station, and the Chinese Academy of Forestry (CAF) in 2003, which provided a framework for the establishment of eight collaborative research programs between the Southern Research Station and CAF in diverse research areas such as termiticidal chemicals produced by endophytic fungi of naturally durable trees, microwave-assisted extraction technology, development of a 20-kg/h continuous microwave reactor for wood liquefaction, and application of near infrared technology in wood science research.

In 1987, I was selected as a representative scientist from the US Forest Service to oversee a USDA Office of International Division (OICD)/ Forest Service International Forestry Technical Assistance project (TW-FS-13 project on "Utilization of Low-Grade High Density Hardwoods") at the Taiwan Forestry Research Institute (TFRI), Taipei, Taiwan. In addition to performing several on-site reviews with reports of the project between 1988 and 1992, I took the opportunity to promote and work with four research scientists at TFRI to build a research collaboration program on the utilization of low-grade high-density hardwoods. I made six trips to TFRI and two scientists (Dr. J.L. Tang and Dr. C. Chow) from TFRI also spent time at the Pineville laboratory. During this collaboration, I organized an international symposium on "Adhesive Technology for Tropical Woods" at Taipei in 1992 assisted by Drs. C. Chow and J.L. Tang of TFRI. More than 160 experts from 10 Pacific Rim countries participated in the conference, and a 629-page book, "Adhesive Technology and Bonded Tropical Wood Products," was published.

In 1989, I was invited as a visiting scientist to the Advanced Polymer Materials Laboratory, Faculty of Agriculture, at the University of Tokyo with a research fellowship (12 mo) awarded by the US National Science Foundation. During the tenure of this visit, I worked on nuclear magnetic resonance spectroscopy and kinetics of cocondensation of urea with methylolphenol. The objectives of the work were concerned with developing an understanding of the reaction and molecular structure of these new resin condensates with the goal of having durability of phenolic resin and costs of urea resin when used in bonding wood composites, an area that has increasingly become a critical research priority in development of wood adhesives. In addition to research collaboration with scientists at the University of Tokyo, I interacted with other major universities and research laboratories in Japan, such as Kyoto University, Kyushu University, Shizuoka University, Tsukuba University, Tottori University, Forestry and Forest Products Research Institute, and Wood Research Institute (Kyoto University) and established a network of research collaborations. In a span of more than 10 yr, Dr. B. Tomita (University of Tokyo), Dr. M. Higuchi and Dr. M. Morita (Kyushu University), Dr. N. Shiraishi and his research associate, Dr. Lin Lianzhen (Kyoto University), and Dr. S.I. Tohmura (Forestry and Forest Products Research Institute) spent their sabbatical research at the Pineville laboratory. My research visit to the University of

Tokyo also enabled me to organize a joint symposium with Tokyo University entitled "Adhesives and Bonded Wood Products," which was held in Seattle, WA, in 1991. There were more than 30 delegates from Japan, which was indicative of the successful nature of the event. Furthermore, all Japanese participants as a group performed a Japanese song on stage, and this was remembered as one of the highlights of the symposium.

These three opportunities of good fortune came to me at the right time and place and provided the necessary funding to develop successful collaborations. The opportunity of mentoring and working with devoted hard-working young scientists has been a rewarding experience that has led me to turn the visiting scientist program into a win–win situation that works to the advantages of both parties. The opportunity of cross-fertilization of ideas among different countries through research collaborations, particularly being able to work with some of the top-notch researchers in the field, has tremendously enriched my research career. I am certain the establishment of an open exchange of information among scientists from these different cultures will prove extremely important in promoting further scientific exchange for years to come. There are many opportunities still ahead of us. I have fully enjoyed mine with the effort and time I spent on international research collaborations. I recommend it to anyone!