

Practices of JSPS International Collaborations

Voice of a Japanese Researcher Involved in JSPS International Programs: International Fellowships for Research in Japan, Bilateral Programs, Core-to-Core Program, and RONPAKU (Dissertation PhD) Program

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Brief CV: Born in 1977, Doctor of Engineering, Graduate School of Engineering, Tohoku University

2002-05: JSPS Research Fellowship for Young Scientists (DC)

2006-09: JSPS Research Fellowship for Young Scientists (PD)

2009-10: JSPS Overseas Research Fellowship

2010-12 Marie Curie Research Fellow at Leibniz Institute of Freshwater Ecology and Inland Fisheries, Germany

Before assuming his current position at CMES in 2020, Associate Professor, Professor at Graduate School of Science and Engineering, Ehime University

~ Please tell us about your activities using JSPS's international programs and any interesting episodes you experienced in carrying them out. ~

Ehime University has invited one researcher from each Germany (FY2015) and Taiwan (FY2018) by way of the JSPS International Fellowships for Research in Japan (Invitational Fellowship (long-term)). Coming from Germany was Dr. Michael T. Monaghan, my immediate supervisor at the Leibniz Institute for Freshwater Ecology and Inland Fisheries in Berlin, Germany, where I studied for three years from 2009 to 2012 under JSPS's Overseas Research Fellowship and other support programs. Dr. Monaghan developed an interest in Japan and Japanese culture following my studies in Germany. Therefore, I proposed that he take advantage of his sabbatical and stay at my lab in 2015. During his stay in Japan, he gave research lectures at several research institutes and provided guidance to

graduate students in my laboratory, which made his time in Japan very fruitful.

Based on a research plan he formulated during his stay at Ehime University, a joint project was subsequently adopted under the Bilateral Joint Research Program between Japan and Germany. After returning to Germany, Dr. Monaghan hosted my lab's graduate students four times for stays of a month or two. Consequently, we are continuing our close relationship through joint research under the KAKENHI grant program's "Fund for the Promotion of Joint International Research (Fostering Joint International Research (B))."

The researcher invited from Taiwan was Dr. Ming-Chih Chiu, a young researcher whom I met at the 2015 International Conference on Freshwater Ecosystems in South Korea. Dr. Chiu conducted research at Ehime University under the JSPS International Fellowships for

Research in Japan during 2018-2019 and actively carried out biodiversity surveys of rivers in Japan with my lab members. He also made possible an unexpected international collaboration by bridging my laboratory with a laboratory at the University of California, Berkeley, where he had previously stayed as a postdoctoral researcher. Finishing his fellowship, Dr. Chiu returned to Taiwan. Then, in 2020, he accepted a position in my laboratory as a specially-appointed professor. Following his return to Taiwan again in 2021, he has retained frequent online contact with me and my colleagues, and we have actively continued our joint research activities.

With regard to bilateral collaborations, I served as a principal investigator in carrying out joint research with three countries: the Philippines (Open Partnership), Germany (DAAD), and Indonesia (DG-RSTHE) via JSPS's bilateral programs. The joint research we conducted with the Philippines (FY 2016-2017) was aimed at sustaining our international joint research project on the ecology of dengue fever vector mosquitoes. It had been launched in FY 2013 with a Grant-in-Aid for Scientific Research (B) (Overseas Scientific Investigation). In carrying out the project, we successfully accelerated researcher exchange by inviting many colleagues from the Philippines to Japan and furnishing them with training needed in genetic analysis techniques to advance our collaborative research. We also organized an international symposium in Manila in which many researchers from Japan participated. Since completing this bilateral joint research, we have continued conducting research exchanges with many research institutions in the Philippines through other KAKENHI grant categories, including the Grant-in-Aid for Scientific Research (B) (Overseas Scientific Investigation) and the Fund for the Promotion of Joint International Research (Fostering



Prof. Watanabe and his collaborators surveying local mosquitoes in Indonesia

Joint International Research (B)), and through the Core-to-Core Program (B. Asia-Africa Science Platforms). We have now established a strong network with more than ten research institutes in the Philippines.

Our bilateral joint research with Germany (FY 2018-2019) started, as I mentioned earlier, when we invited Dr. Monaghan to my lab under the JSPS International Fellowship for Research in Japan. Dr. Monaghan, his lab's German postdoctoral fellows and doctoral students stayed at Ehime University, where they interacted with me, the postdoctoral fellows, and graduate students in my laboratory. This proved to be an excellent opportunity to promote exchange among the young researchers, as they kept in touch with each other after the bilateral collaboration ended.

Our bilateral joint research with Indonesia (FY 2019-2021) started when we launched a joint research project on dengue vector mosquitoes with Padjadjaran University in Bandung under the Grant-in-Aid for Scientific Research (A) (Overseas Scientific Investigation), in which I participated as a subcontractor. Previously supported by JSPS's bilateral programs, this time our collaboration was supported by JSPS's RONPAKU (Dissertation PhD) Program (FY 2017-2019). A lecturer who had played a central role at Padjadjaran University in carrying out the above Grant-in-Aid for Scientific Research (A) wanted to obtain a

doctoral degree from a university in Japan. He had already begun to collecting data for his Ph.D. dissertation through his field research in Indonesia, so he had no need to enroll in a doctoral program at Ehime University. In light of these circumstances, we decided to utilize the RONPAKU Program to conduct our joint research. As this support enabled a more active exchange with Padjadjaran University, we went on to apply for bilateral programs to continue our interactions. Under JSPS's Bilateral Joint Research Program (FY 2019-2021), we invited seven researchers from Padjadjaran University to Ehime University for stays of about one month and provided them with technical training in genetic analysis and other areas. We also held several joint workshops in Indonesia to deepen our bilateral exchanges with colleagues there. We are now developing collaborations on dengue vector mosquito studies with four research institutions in three Philippine cities: Bandung, Makassar, and Yogyakarta.

We have steadily increased our research collaborations with the Philippines and Indonesia through bilateral joint research on mosquito-borne infectious diseases such as dengue fever. We established a five-partner country international network with the Philippines, Indonesia, Bangladesh, Mozambique, from where students studying the diseases in my laboratory hail, and Singapore, where Ehime University researchers conducted bilateral collaborations. It worked with us in researching mosquito-borne infectious diseases. We then succeeded in applying for a joint project under JSPS's Core-to-Core Program (B. Asia-Africa Science Platform Program: FY2021-2023). Since the COVID-19 pandemic has prevented in-person exchanges, we have conducted a series of online meetings, and the researchers on our teams are carrying out research and experiments in their respective countries. We are

planning to hold webinars with each country in the near future.

~What is your message to upcoming participants in international scientific exchanges or to researchers considering to apply for JSPS international programs?

JSPS international programs play a significant role in building relationships of trust needed for international joint research as well as for creating the groundwork for long-term joint research, in contrast to producing research results in a short period. Mutual understanding can be deepened by sharing valuable experiences, for instance, crossing national borders to engage in face-to-face discussions over long hours, or traveling by car to research fields together with colleagues while caught in traffic. You can also talk about things other than research over meals together. Once a relationship of trust is established, both parties will respect each other and be able to develop long-term collaborations, even if they may sometimes have to make big requests of each other.



A scene from a discussion with the collaborators in the Philippines

~Please tell us about how the use of JSPS programs has led to other developments.~

Building upon the aforementioned international scientific exchange achievements, we launched the Ehime University-De La Salle University International Research Collaborative Laboratory in Manila in 2020. We assigned resident researchers and administrative staff to the laboratory and have successfully established an organization to facilitate joint research and education between the two universities. The laboratory has initiated unique personnel exchanges, such as international cross-appointments of faculty members between De La Salle University and Ehime University. Many spinoff benefits have accrued from these programs, especially in the Philippines, where we have had a long history of academic exchanges.

Using the successful case in the Philippines as an ideal precedent, we plan to expand our international collaborative research platforms by establishing international joint laboratories in Indonesia and other countries.

Another meaningful aspect of JSPS's programs is that they give an opportunity to young researchers and students to enjoy making overseas contacts. As a first-year master's student at Tohoku University, I became acquainted with Dr. Klement Tockner, who was invited from Switzerland by my supervisor under the JSPS International Fellowship for Research in Japan. Seven years later, I had the opportunity to study as a postdoctoral fellow for three years at a research institute in Germany, where Dr. Tockner served as the director. One of the most gratifying aspects of JSPS's international programs is the spillover effects that often manifest themselves after a time lag in ways not initially envisioned. I want to encourage researchers interested in developing long-term international exchanges to

actively take advantage of JSPS's grant and fellowship programs.