Recollections of My Experience Grants-in-Aid for Scientific Research

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My recollections of Grants-in-Aid for Scientific Research (Kakenhi) fall into two broad categories. The first category comprises memories from my experience as a recipient of Kakenhi for its intended purpose: supporting research. That experience extended from my days as a young researcher up to my retirement from my university career. The other category includes my memories later on as a senior program officer in the agricultural sciences appointed to the Research Center for Science Systems, an institution of the Japan Society for the Promotion of Science (JSPS). In that role, I spent about two-and-a-half years traveling around Japan to give a total of 50 presentation meetings on the Kakenhi program. This was prior to my job as a JSPS Inspector General.

Following the completion of work for my doctorate in fisheries science from the University of Tokyo Graduate School of Agricultural and Life Sciences, I received research funding for about one month granted for specified researchers. This was my first encounter with the JSPS, which at the time was headquartered in the Yamato Building in Yotsuya, Tokyo. In later years, I received research fund assistance from the Kakenhi program for projects that I pursued as an assistant to full-time professor, up until retirement age.

In high school, I had no interest in biology whatsoever. For my university entrance exams, I actually focused on physics and chemistry. However, in my third year as an undergraduate student, during a summer field work in fisheries science at the Seikai National Fisheries Research Institute in Nagasaki, I encountered a species of flathead fish that underwent sex reversal from the male to female sex. (This surprised me because until then, I had always been taught that gender was something determined genetically.) Intrigued by the mysteries surrounding sex reversal, I had myself transferred to a university laboratory in physiology for my graduation thesis. This was the event that triggered my interest in biology.

It was right around this period in time that research had begun in earnest in the fisheries world on the seed production of marine fish species. One of our professors that had been engaged in this research became the first in the world to successfully breed black

sea bream, a species that undergoes sex reversal from male to female. I received samples of the remaining fry, which had grown to around 2 cm in length, and was able to complete my graduation thesis on the subject of early-stage sex reversal in black sea bream.

From that point onward until my retirement, I continued to study the mechanisms of sexual maturation in fish. In experiments, I induced early-stage sex reversal by mixing tiny amounts of female sex hormone into the fish feed. During this research, a colleague suggested that I take blood samples when sampling the fish stock. Afterward, using electrophoresis techniques, I discovered that the serum protein level abnormally rose in samples of blood taken from the group of fish that had received feed laced with female sex hormone. I suspected that this was an egg yolk protein precursor that had been secreted into the bloodstream by the liver but that idea was dismissed by my supervisor at the time on grounds that nothing of that nature had been reported in the literature. However, that idea is the established theory today.

Later on, after I had gained employment, I continued with my research on fish breeding mechanisms but became heavily dependent on Kakenhi along the way. In particular, after assuming my position as a university professor, I had a tough time securing enough funding to offset even the running costs for research. I received Kakenhi for many of the research projects I led as principal investigator. Those projects covered an array of themes: for example, the establishment of techniques to control smoltification in certain salmon species; elucidation of the regulatory mechanism of spawning time in fish; establishment of methods to regulate the spawning season in fish, and applications in chromosome manipulation; the physiological elucidation of mechanisms that regulate reproduction and molting in crustaceans; regulatory mechanisms of reproductive rhythms in fish; mechanisms of migration in marine life; the development of useful molecular probes for fisheries biology; the elucidation of the neuroendocrine system regulating reproduction and molting in crustaceans; mechanisms of weight fluctuation in fish maturation stages; generating and regulatory mechanisms of daily rhythms in fish; the control of gonadal maturation and spawning in the Kuruma prawn; molecular and endocrinological mechanisms of the stress response in fish; and dynamics of growth and reproduction in fish.

Additionally, a number of projects in which I was involved as a co-investigator also received Kakenhi grants or research funding from the Fisheries Agency. We were able

to expand the scope of our research to crustaceans when priority had shifted to studies at the graduate school level and we had renamed our fish physiology laboratory to the aquatic animal physiology laboratory. Of course, improving our access to Kakenhi was one of the ulterior motives behind that renaming.

Eventually, one year before the national universities were incorporated as national university corporations, I was appointed to head the Graduate School of Agricultural and Life Sciences. There, I would spend three years dealing with the task of helping the department ready for its scheduled incorporation until I reached retirement age at 62 and transferred to the Nodai Research Institute at Tokyo University of Agriculture. Afterward, I would be appointed to a post as senior program officer for agricultural sciences at the JSPS's Research Center for Science Systems.

JSPS Center senior program officers were granted research funding for nominal use as part of their research spending. That funding allowed me to travel around Japan over the next two-and-a-half years and give a total of 50 presentation meetings on Grants-in-Aid for Scientific Research. Because that funding was enough to cover my expenses, I did not need to ask my hosts to reimburse me for travel expenses or pay any compensation.

In fact, the Tokyo University of Agriculture where I would be reemployed later, in particular, there was no momentum to apply for Kakenhi, and sometimes the presentations I gave attracted few faculty members. In the worst case, only one professor showed up. Today, researchers at the Tokyo University of Agriculture receive a combined total of over 200 million yen in research funding as well as generous allowances to cover indirect expenses. One welcome outcome from this trend, I am told, is that young researchers that fail to have grant applications approved even though they received good scores in screening still receive research funding through allocations of a part of research funds granted to the University.
These benefits may have been available because Kakenhi is managed entirely by the research institute and allocations are not made on a departmental basis. In any event, I was able to give 50 presentations on the Kakenhi program and visit the agricultural departments of leading universities nationwide as well as the research facilities of the Ministry of Agriculture, Forestry, and Fisheries and gain exposure to many views and opinions on trends in agricultural research and the MEXT grant program itself.

Indeed, as someone already past retirement age, I felt fortunate to have the opportunity

to visit all of the Regional Fishery Research Laboratories. When I attend meetings as a member on an independent evaluation panel for project research, someone may occasionally come up to me and let me know they were at one of my presentations on the Kakenhi system. I am always delighted to hear that.

On a final note that is not directly related to my memories of Kakenhi, the old Yamato Building that once housed JSPS headquarters in Yotsuya many years ago was eventually demolished due to advanced age. During construction of a new building JSPS was operated departmentally at several locations, but finally managed to relocate all its departments and divisions into a single new structure. Since this happened while I was serving as an Inspector General, I remember it particularly well.