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The People Who Support the Grants-in-Aid Program That Supports Scientific Research

"Go buy some isotopes." These words marked the beginning of my research using Grants-in-Aid for Scientific Research. It brings me back some 30 years when I was still in graduate school. As it had been difficult for our lab to acquire such grant funding, I can remember sharpening lead pencils to make carbon electrodes and cobbling together with materials at hand electrophoresis devices. For conducting our research, we borrowed a laboratory that had a bunch of centrifuges already in it. We enjoyed our research pursuits while being innovate with regard to equipment and facilities. There was just one thing that perplexed us: buying expensive reagents. In particular, we were not able to obtain as much ³⁵S-labeled methionine as we needed. Then, Professor K secured Grant-in-Aid funding, which allowed us to make purchases of ³⁵S methionine twice a year. Since, however, this isotope has a half life of only 87 days, even being very innovative in its use, each purchase would barely last us for six months. Still, that Grant-in-Aid was instrumental in sustaining my research over a year's period.

After receiving my doctorate, I transferred from one research lab to another: from the Hongo Campus of Tokyo University, to Osaka University, Tohoku University, the Koishikawa Annex of Tokyo University, and back to the Hongo Campus of Tokyo University. Moving between universities is widely considered to be advantageous for advancing one's research; however, it incurs considerable costs for shipping and installing lab equipment. In my case, most of these costs were not covered by either the government or the universities. Essential to my research was apparatus for growing a flowering plant called *zinnia elegans*. As I could not start my work without this apparatus, each time I moved I had to reconstruct it. When I moved to the Koishikawa Botanical Garden, however, I prepared the soil with the help of my students the arboretum's staff and replaced the Garden's transformer with a discarded one I got for free from the university. This left me enough Grant-in-Aid money to purchase and install the plant-growing apparatus. If it hadn't been for the help I was so fortunate to receive from Grants-in-Aid to either build or buy these plant-growing apparatuses, I would not have been able to advance my research while moving be-

tween this succession of universities.

The day of the Great Hanshin (Kobe, Osaka, Kyoto area) Earthquake is one that remains indelible in my memory of Grant-in-Aid related experiences. On that day, the first working group meeting on a Plant Organ Plan headed by Kenzo Nakamura was scheduled to be held in Kyoto under the Grant-in-Aid for Scientific Research on Priority Areas. Of course, the meeting had to be cancelled. The group did, however, bring together a cadre of diverse researchers that would go on to carry out Japan's first team research on plant development under the same but renamed grant category. Headed in turn by Prof. Kiyotaka Okada, myself and Prof. Yasunori Machida, the group continues to advance its work today. Over these years, plant development had jumped to the forefront of botanical research in Japan, accruing for the group a prestigious international reputation as well. In *Science Map 2006-Study on Hot Research Areas [2001-2006]*, botany, driven by advances in plant development research, was in fact ranked after nano-science and element/universe theory as one of Japan's six most powerful research domains.

These research advances notwithstanding, the greatest merit of Grants-in-Aid in sustaining our research group was possibly their use in fostering the next generations of researchers. For example, grant funding is used hold annual workshops for young researchers in this field. Over the past 14 years, the network among young researchers has been greatly strengthened. Through a process of both collaborating and competing with peers, many of our former doctoral students have now leaped to the upper echelons of the international scientific community in the field of botany.

Turning the page, I'd like to talk about my work at the Research Center for Science Systems, which is established within the Japan Society for the Promotion of Science (JSPS). As one who has benefited greatly from the Grants-in-Aid program, I could not refuse when three years ago I was asked to serve as a senior program officer in the Center's Biological Sciences Program Group. One of my tasks in that post was to help make the Grants-in-Aid system more user-friendly.

The Center was reviewing many aspects of its Grants-in-Aid program, and considering strategies for increasing the number of

well-qualified application examiners, assessing and improving the evaluation system, establishing new grant categories, augmenting the overall amount of grant funding, and compiling and disseminating grant application/selection-related data.

The number of grant applications had been increasing year by year. For example, the number of new applications in 1994 was 72,000 vis-a-vis over 100,000 in 2006. This surpasses the number of grant applications received by the National Science Foundation and other leading overseas funding agencies. Amidst these conditions, the Center is working to build a system that ensures fairness for the applicants while streamlining the review process so as to ease the immense burden placed on the application examiners. What's most key, however, to achieving an effective evaluation process is the attitude and performance of each researcher who serves as an examiner. Toward improving the process, we, therefore, established a system to review the evaluation results of each examiner. I must take off my hat to most of these researchers for excellent-both impartial and sincere-manner in which they perform their evaluations. However, we do occasionally encounter cases where if an examiner had only tried a little harder, a better screening result would have been possible.

We are working in various ways to correct such system deficiencies. For example, researchers registered in our examiner database are asked to update their information every year. Having accurate information on each examiner allows us to optimize their evaluation assignments. When making final grant decisions, it is of utmost importance for the first-stage document examiners to have been thorough and precise in the comments they provide. Improving this facet alone can make a quantum difference in the quality of the evaluation process.

In March, I "graduated" from the Research Center for Science Systems. The last thing I'd like to convey to the reader regards the devoted efforts of JSPS's administrative staff: Standing on the side of the researchers, they are working diligently to improve the Grants-in-Aid system. In pushing forward these enhancements, I look forward to the administrative staff and Center's researchers locking arms in a scrum towards those goals.