

A foreign scientist's perspective of research at a Japanese University.

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Historically, all cultures failed to establish the concept of equality between members of their own community and foreigners living within the national community. Worldwide, this situation is undergoing a process of gradual revision via legislation, education and the increasing personal experience of peoples of other cultures. This process will inevitably continue at an even greater pace since emigration from resource deprived regions will continue to increase in scale as the world population increases and as economically developed countries face problems of maintaining economic productivity and lifestyle with increasingly smaller work forces which have to support aging, unproductive populations.

As any of you who have lived and worked overseas will agree, subtle forms of inequality exist between nationals and foreigners in any community. On a personal level these inequalities are easily overcome through dialogue and empathy that comes through personal contact. However, inadequate bureaucratic impartiality is much more difficult to redress. This letter attempts to highlight some of the limitations encountered by foreign scientists in Japan that contribute to the facts that although the numbers are gradually increasing:

- There are very few Western foreign scientists conducting research at Japanese Institutions.
- There are very, very few senior Western foreign scientists conducting research at Japanese Institutions.

- Very few Western foreign post docs remain in Japan to continue the research initiated during their post doc.

I have worked as a research scientist in 5 different cultures (Australia, Sweden, USA, China and Japan) over the last 15 years. I believe the comments I make are generally relevant to all foreign scientists in Japan but scientists from racial backgrounds different from my own may have additional considerations that I will not address.

The majority of foreign researchers enter Japan to research with the support of the excellent JSPS. Annually, JSPS provides fellowships for about 200 post docs and 80 older scientists for research periods of up to 2 years and 10 months respectively. Gauging by the numbers of applicants, these fellowships are popular among scientists of Asian origin but much less popular with Western scientists. Short-term fellowships are also available and the statistics suggest that the majority of foreign researchers find a brief visit to Japan a more favorable alternative to a longer stay. (See <http://www.jsps.go.jp/j-fellow/main2.htm> or <http://www.jsps.go.jp/j-inv/adoption.htm>). A very small number of enlightened pharmaceutical companies, such as the Takeda Foundation, also provide research fellowships for foreign scientists, provided they have an enthusiastic Japanese co-worker as sponsor (<http://www.takeda-sci.or.jp>). The number of foreign researchers in Japan is very small

compared to the number of Japanese researchers in Japan but does tend to reflect the number of foreigners in Japanese society in general.

The Post Doctoral Fellowships are generally economically adequate for both the researcher and the host laboratory and do achieve the JSPS goal of enabling researchers to, under the guidance of their hosts, conduct cooperative research, thereby permitting them to advance their own research while stimulating Japanese academic circles through close collaboration in scientific activities. In regard to more senior scientists, the economic value to the researcher of the JSPS Invitation Fellowship (Short-Term and Long Term) are very generous if the applicant also receives a salary from his or her own nation's institution. This probably contributes substantially to the popularity of short-term fellowships. However, if the JSPS Invitation Fellowship is the sole income for the researcher, the economic value is modest compared with salaries for senior researchers in Western countries. The economic support provided by the JSPS Invitation Fellowship to the laboratory of the host scientist in the form of a research allowance is completely inadequate, with 4万円 being allocated for 10 months of research.

However, by far the greatest inadequacy of these JSPS science fellowships is that they are for fixed, non-extendable periods. The emphasis appears to be on the turnover of foreign researchers without any provision for performance based re-application or extension. If your research is productive and you and your host desire you to continue, you must obtain alternative funding or leave Japan and discontinue your research. As all readers will appreciate, abandoning research uncompleted is economically wasteful and scientifically unsatisfactory.

The search for alternative funding, in order to

continue research, highlights numerous unexpected problems for the foreign researcher. To be eligible to apply for 科学研究費補助金 grants, applicants must have a position at a university or research institute. This condition determines that foreign researchers are invariably ineligible. Thus in practice, but not in theory, foreign researchers are unlikely to be able to satisfy the prerequisites for direct application for government research funding.

Although not the usual path to employment for Japanese researchers, the most probable source of financing for foreign researchers wishing to continue research in Japan comes from being paid from the MEXT or JSPS 科学研究費補助金 grant of a Japanese co-worker as an employee. If the co-worker has not obtained a Kibankenkyu level S or A or above, there will be insufficient funds available to support the expense of research and the expense of employing a foreign researcher.

In my case, the funds of my co-worker are inadequate and I need to supplement my co-workers grant from non-JSPS funding bodies if I am to continue research and receive an appropriate salary. Unfortunately the majority of non-JSPS funding bodies stipulate that foreign researchers cannot apply. A small number will accept applications from foreign researchers provided they are in Japanese and an even smaller number will accept applications in English. At the national university where I work, the administration is complex and has a rigidity that does not well accommodate non-Japanese educated scientists. It appears that regulations may differ between universities but at my national university there is no procedure by which foreign scientists can be employed at a title equivalent to their rank, such as an associate professor. Foreign scientists in my position, can only be employed as 研究支援者 while the JSPS recommended title is 支援研究者.

At my national university, in my particular case, a funding application by a foreign researcher must list his/her title as 研究支援者 and not as a professor, associate or assistant professor because administration guidelines stipulate that foreign researchers in my position are employed as 研究支援者. This seems a small issue but is not. It has many broad implications, even in the search for funding. Obtaining research funding is a matter of instilling confidence in the assessor. It is difficult to inspire confidence when the applicant's position is clearly temporary and subservient. If foreign scientists are selected for JSPS fellowships on the basis of their experience and educational qualifications to perform research in Japan, then is it not more egalitarian to allow them to have appropriate official titles?

Furthermore, as seems well known in Japan but was novel for me, often non-JSPS funding bodies only permit one grant application per university and thus an intra-university selection procedure is applied. This system justly enables applicants from the numerous regional universities and larger more famous universities equal opportunity to submit applications. However, an unfortunate aspect of the intra-university selection procedures is that they often lack transparency. Feedback from the intra-university selection committee about any inadequacies of an unsuccessful application is not provided, even when requested. This unprofessional approach does not inspire confidence, does not foster a belief in impartiality and provides no assistance to the researcher wishing to amend his or her application and have a better chance of success in the future. The transparency of intra-university selection procedures needs to be improved.

On a more general note, many grants have age limits. What is the difference between 44 and 45 or 45 and 46? What do such age limits attempt to address? Certainly young scientists do

very good work but older researchers who are seriously interested in and totally capable of unsupervised research also have real value. It is ironic that recent post-graduates have more funding possibilities than the scientists who trained them. If the rationale behind the age limit is to provide funding opportunities for, and stimulate research by, non-professorial researchers then this should be accomplished with application limits based on research title rather than age.

I came to Japan with the intention of using my knowledge and experience to work with my Japanese co-worker **as an equal** in developing research projects that would further the understanding of hibernation physiology. This work can be performed in very few laboratories around the world. Our research is teamwork, in which each person provides an expertise that complements the other's skill or experience. We have made significant progress in our research, have published papers, have papers currently under review and have projects nearing completion with others that will require more time to complete, but this progress is not consistent with the fixed time scales allocated for research intended to be performed by foreign scientists in Japan. To my knowledge, I have exhausted the funding opportunities available to me as a foreign researcher and have no alternative but to abandon progressing research.

The support of the pursuit of scientific knowledge is an investment considered viable, to varying degrees, by all governments in the world, since the application of this knowledge is ultimately beneficial and lucrative to society and the governments. Education to a professional level is economically expensive for the government and increasingly for the individual. At this time the search for personal economic fulfillment provides the impetus for a greater movement of skills

from one country to another than at any time in history. One strategy to counter the loss of educational resources by emigration of young Japanese scientists to America and retirement of older resident scientists, is to provide conditions that will attract highly skilled, foreign-educated pro-

fessionals. The JSPS does this adequately. The logical progression is to provide a means of retaining those same professionals if they prove to be productive in the work place and have the social skills to adjust to your culture. This does not occur in Japan at present.