Presentation

About the J-GRID (Japan Initiative for Global Research Network on Infectious Diseases)

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Abstract: Since infectious diseases heed no national borders, international research collaboration across borders must be enhanced. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan launched the J-GRID program in the fiscal year (FY) 2005, which consists of the two elements; (1) the construction of collaboration centers in Asian and African countries on a reciprocal basis between a Japanese university/institution and an overseas partner university/institution and (2) the networking of those collaboration centers and setting up its headquarters at RIKEN. J-GRID initiated with 5 collaboration centers in 3 Asian countries has expanded to include 13 centers in 8 countries (6 in Asia and 2 in Africa). The aims of J-GRID include conducting high quality research on infectious diseases of regional and global importance, advancing relevant technologies and developing human resources in the field. In this way, J-GRID is expected to contribute to the public health of the host countries, Japan and the rest of the world. After the completion of the first start-up phase, Term I (2005–2009), J-GRID has stepped up its activity for the second step-up phase, Term II (2010–2014). While the first term was just like an incubation period, the second term should be the exponential growth phase, maximizing its research activities. Indeed, J-GRID is now generating remarkable research outcomes with an increasing number of publications. The mid-term evaluation made by the MEXT in FY2012 commended J-GRID as an ideal model to demonstrate Japan’s leadership, in science and technology, and strongly recommended its extension in years to come after Term II terminates in FY 2014.

Key words: Japan Initiative for Global Research Network on Infectious Diseases (J-GRID), China, Vietnam, Thailand, Indonesia, India, Zambia, Ghana, Philippines, Emerging and Reemerging Infectious Diseases

WHAT IS J-GRID?

Because only 10 minutes are allotted to my talk, I will present just a brief overview on what J-GRID is. It is the abbreviation of Japan Initiative for Global Research Network on Infectious Diseases. As exemplified by the SARS outbreak in 2002–2003, infectious diseases heed no national borders but sharing information and research materials across borders are not always easy. Therefore, international collaboration across borders must be enhanced. This is the conceptual basis on which J-GRID was launched in the fiscal year (FY) 2005, as an undertaking commissioned to Japanese universities and research institutions by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

J-GRID consists of two elements. One is to construct collaboration centers (labs) in Asian and African countries on a reciprocal basis between a Japanese university or institution and an overseas partner university or institution. There the researchers from Japan are stationed and daily work together with their counterpart researchers. The other is to connect those collaboration centers into a network and set up its headquarters, the Center of Research Network for Infectious Diseases, for short, CRNID, at RIKEN in Tokyo.

First of all, the CRNID was established in FY 2005. I have been the director of CRNID since the beginning. In the same year, collaboration labs were launched in three countries. In China, the University of Tokyo established the collaboration centers at the Institute of Biophysics and Institute of Microbiology of the Chinese Academy of Sciences in Beijing and further at the Harvin Veterinary Research Institute of the Chinese Academy of Agricultural Sciences. In Vietnam, Nagasaki University established a lab at the National Institute of Hygiene and Epidemiology in Hanoi and the National Center for Global Health and Medicine at Bach Mai Hospital in Hanoi and several other Vietnamese hospitals. In Thailand, Osaka University
established a lab at the National Institute of Health in Bangkok. Collaboration also started between the National Institute of Animal Health of Japan and the institute of the same name in Bangkok (Table 1).

Hokkaido University was a special case because it was invited to the network in 2005 without setting up any bilateral collaboration labs in view of its long history of sampling materials at many overseas sites and their biological and genetic characterization.

**Expansion of J-GRID**

The network has expanded subsequently to include several more. In 2007, Okayama University established a collaboration lab at the National Institute of Cholera and Enteric Diseases in Kolkata, India, Kobe University at the

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**Table 1. Bilateral collaboration centers launched by J-GRID**

| Country   | FY  | Overseas Counterpart                                      | Japan Side                                      |
|-----------|-----|-----------------------------------------------------------|------------------------------------------------|
| Thailand  | 2005| National Institute of Health                              | Osaka University                                |
|           | 2011| Faculty of Tropical Medicine, Mahidol University          |                                                |
|           | 2005| National Institute of Animal Health                       | National Institute of Animal Health             |
| Vietnam   | 2005| National Institute of Hygiene and Epidemiology            | Nagasaki University                             |
|           |     | Bach Mai Hospital and other hospitals                     | National Center for Global Health and Medicine  |
| China     | 2005| Institute of Biophysics, Chinese Academy of Sciences      | The University of Tokyo                         |
|           |     | Institute of Microbiology, Chinese Academy of Sciences    |                                                |
|           |     | Harbin Veterinary Research Institute, Chinese Academy of Agricultural Sciences | |
| Zambia    | 2005| Samora Machel School of Veterinary Medicine, University of Zambia | Hokkaido University |
| India     | 2007| National Institute of Cholera and Enteric Diseases        | Okayama University                              |
| Indonesia | 2007| Institute of Tropical Disease, Airlangga University        | Kobe University                                 |
| Philippines | 2008| Research Institute for Tropical Medicine                  | Tohoku University                               |
| Ghana     | 2008| Noguchi Memorial Institute for Medical Research University of Ghana | Tokyo Medical and Dental University |
| Japan     | 2005| Center of Research Network for Infectious Diseases (CRNID), RIKEN | |

**Associate Member**

| Country   | FY  | Overseas Counterpart                       | Japan Side          |
|-----------|-----|--------------------------------------------|---------------------|
| Kenya     | 2011| Kenya Medical Research Institute           | Nagasaki University |
| Myanmar   | 2011| National Health Laboratory, Department of Medical Research in Nay Pyi Taw | Niigata University |
Institute of Tropical Medicine in Surabaya, Indonesia, and Hokkaido University at the Samora Machel School of Veterinary Medicine of the University of Zambia in Lusaka. In 2008, Tohoku University started a lab at the Research Institute for Tropical Medicine in Manila, the Philippines and Tokyo Medical and Dental University at the Noguchi Memorial Institute for Medical Research of the University of Ghana in Accra. As of the end of FY 2011, therefore, a total of 12 research centers were established in eight countries (six in Asia and two in Africa) (Table 1).

In 2011, Osaka University expanded its activity to include a new collaboration lab at the Faculty of Tropical Medicine of Mahidol University in Bangkok (Table 1). In the same year, two collaboration teams, which had been supported by different categories of MEXT’s budget, were invited to J-GRID as associate members (Table 1).

MISSIONS OF J-GRID

J-GRID aims to mitigate the risk of infectious diseases in the counterpart countries, Japan and the world. Its actual missions include conducting high quality research on infectious diseases of regional and global importance, advancing relevant technologies, developing human resources in the field, and disseminating research outcomes to the public. In addition, J-GRID is expected to promptly respond when anything strange has broken out.

THE PAST, PRESENT AND FUTURE OF J-GRID

Let me look back at the beginning of this program. The prior evaluation for this program was made in 2004. The committee for this evaluation indicated that the program should be implemented over the long run and not be based on a short-term outlook, but actually started as a short-term (5 years) project in a highly competitive funding scheme for life science (Fig. 1).

The Term I in the initial 5 years (up to FY 2009) was just like an incubation period as we had to spend much time for concluding the memorandum of understanding with the counterparts, setting up labs, deciding research topics and recruiting human resources. Nevertheless, because the network of 12 collaboration labs in eight countries was established, the first Term evaluation committee concluded that the J-GRID is an excellent model of Japan’s science and technology diplomacy (Fig. 1).

The program entered the second Term, which started again as a short term project (FY 2010 to 2014). We hoped to make Term II an exponential growth phase by maximizing research capacity (Fig. 1). Indeed, as you see here, the number of papers published from J-GRID increased remarkably (Fig. 2). I want to say they covered broad research area of infectious diseases from very basic bench work to the clinical studies and fieldwork, and exhibited high significance for the regional and global public health. I am proud of these research outcomes and express my deepest appreciation to all the members of J-GRID for having made great efforts to produce these outcomes. The mid-term evaluation for Term II, which was made last year (2012), concluded that J-GRID was contributing to the health and the safety of the counterparts, Japan and the rest of the world and demonstrating Japan’s leadership in science and technology (Fig. 1).

In this session, two presentations will be made by J-GRID members. I find in the agenda of this annual meeting that several more presentations from J-GRID will also be made. I think this annual meeting provides a very nice opportunity to share our J-GRID research outcomes with
all of you.

Finally, I would like to describe a little bit about the scheme- or regime change in the policy of funding for medical science in Japan (for some more details see ref. 1). The medical and health care research in Japan has been supported separately by three different ministries, the MEXT, Ministry of Health, Labor and Welfare (MHLW) and Ministry of Economy, Trade and Industry. The government of Japan, led by Prime Minister, Shinzo Abe, claims that the flow from basic research to practical, industrial or commercial output is neither swift nor smooth and that the output is not internationally competitive enough, at least in part due to vertically segmented administrative functions or ministerial sectionalism. These considerations led to the idea to construct a new body of funding and managing for some selected research areas in the Cabinet Office, which is provisionally called here “Japan Initiative for Research and Development of Medical Care” and is expected to be run efficiently under close cooperation between different ministries involved.

A total of 9 research areas were selected. One of them is the “Control of Emerging and Reemerging Infections” which will be managed through the cooperation between MEXT and MHLV. J-GRID was regarded as one of the major players in this area. The other areas include “Regenerative Medicine” “Cancer”, “Medical Genome”, “Brain and Mind”, “Incurable Diseases”, “Medical Devices” and others.

One of the issues expected for the infectious diseases area is to vitalize the personnel exchanges and thereby to enhance synergy between MEXT and MHLV sectors, especially between J-GRID and the National Institute of Infectious Diseases (NIID). As in the other areas, innovation weighs heavily in this area. Thus, the other issue is to facilitate the production of novel diagnostic tools, antimicrobes and vaccines. To this end, active participation of not only J-GRID and NIID but also other universities and institutions (academia) and pharmaceutical industries as well as bio-venture companies is essential. J-GRID may require some reform to become better suited for this new funding policy.

Thank you very much.

REFERENCE

1. Nagai Y. About the Japan Initiative for Global Research Network on Infectious Diseases (J-GRID). An overview. J Dis Res (in press)