

Scientific Misconduct as an International Issue  
- New OECD project and its implication to national policy -

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### Summary

Fabrication, falsification, plagiarism (so-called FFP), and other unethical acts damage the trust of public in science and scientists. Scientific communities, governments and research institutions should take the appropriate countermeasures. With the increasing visibility and importance of problem, funding agencies and policy-makers find that they must have a better understanding of this phenomenon, and take steps to prevent it.

Science is often said as a borderless activity. In these days, many scientific misconduct cases have been emerging almost simultaneously and worldwide. Thus, the immediate actions should be taken internationally as well as nationally.

From these points of view, we, Japan, proposed a new international joint-study at OECD *Global Science Forum* in February 2006, and the proposal was approved with supports by many countries including Korea. OECD would seek an international perspective to address this worldwide problem, bringing together the representatives of science communities, publishers, funding agencies, and policy makers, and exchanging their experiences.

### 1. Background

Scientific misconduct, such as fabrication, falsification, plagiarism (FFP), causes the damage of citizen's trust in science and scientists. Therefore, scientific communities, governments and institutions have taken countermeasures against it.

For example, The US established the *Office of Research Integrity* (ORI) under the *Department of Health and Human Services* (HHS) to deal with this problem. In the UK, *Medical Research Council* (MRC) made the principles to prevent scientific misconduct for the universities and research institutions.

In these days, however, many scientific misconduct cases have been apparent almost simultaneously and worldwide. Here, it must be effectively addressed under the aegis of a recognized international cooperative structure. While each country has tried to make

efforts to deal with the scientific misconducts, the exchange of good practices among countries can be beneficial to know de facto in major science-advanced countries.

## **2. Rationale**

It is necessary to discuss this issue internationally. Then, which international organization is suitable? The OECD *Global Science Forum*, an international forum for the promotion of international cooperation in the science policy area, seemed us as an ideal arena to discuss this global problem.

The OECD *Global Science Forum* consists of OECD member countries, which cover the large portion of science community. They have rich experiences and can take up this worldwide scientific problem and seek international perspective to address it.

The standard approach of the OECD *Global Science Forum* is to establish a workshop or a study-group, consisting of representatives of scientific communities, scientific publications, funding agencies and policy makers. The OECD *Global Science Forum* is not usually used to enforce some country to follow regulation or guideline. Rather, they would be expected to exchange their experiences and consider good practices. We can see that this approach matches the issue on scientific misconducts.

For these reasons, we, Japan, raised the issue at the OECD *Global Science Forum*.

## **3. Scope of Activity**

### **1) Definition of “Scientific Misconduct”**

When we talk about scientific misconduct, should we focus on *FFP (Fabrication, Falsification, and Plagiarism)* that is related with scientific integrity? Or, we should broaden our boundaries to other types of *unethical activities*, which are not related with scientific integrity, too? These definition questions are normally discussed at the beginning of any activity.

The OECD *Global Science Forum* has already discussed this issue. Not surprisingly, almost all of countries insisted that we should not take much time on the definition issue, rather should discuss the countermeasures soon. For the same reason, they preferred to focus on scientific integrity or scientific dishonesty, because unethical conduct is too vague to discuss at the inter-governmental arena. This clearly implies that these countries feel that the immediate action is necessary.

### **2) Countermeasures against scientific misconduct**

We, Japan, raised mainly three countermeasures. The OECD *Global Science Forum* has already discussed the scope of activity. The best practices should be learnt by the international exchange of experience. Each of them is recognized as valuable to be analyzed. However, it was interesting to hear many countries stress that the first countermeasure should come from autonomous actions by science community.

#### **2-1) To keep and strengthen scientific integrity**

A countermeasure based on autonomous actions by science community must be discussed at first. For example, some of academic associations have their ethical norm of scientists (ex: Avoiding authorship without checking co-author's work). This autonomous action is truly required to regain public trust on science and scientists, and to keep and strengthen scientific integrity.

### **2-2) To find and address misconduct**

The next step of countermeasures would be to design a suitable research funding system. An effectively designed system of a funding agency may contribute to find and address misconducts.

How do we find misconduct effectively? A Possible issue would include methods of peer-review/evaluation, of cooperation with publishers, and so on. Funding agencies are now trying to find a way to solve the problem, then this international exchange of good practices can be beneficial and the international cooperation may have a further possibility to design a more effective funding system (e.g. joint evaluation practice).

The penalty is clearly one of the countermeasures for reducing the misconducts. Then, what type of penalties should be built in the funding system? Most of stakeholders have some rule on penalty, but it is still unclear what degree of penalty should be imposed for what kind of misconducts. In this sense, the international dialogue and analysis of good practices looks valuable. However, the penalty is controversial in spite of its necessity. At the OECD *Global Science Forum*, the majority of member countries claimed the caution that the excessive penalty can discourage the healthy progress of science and that we should not consider the penalty as a measure countermeasure.

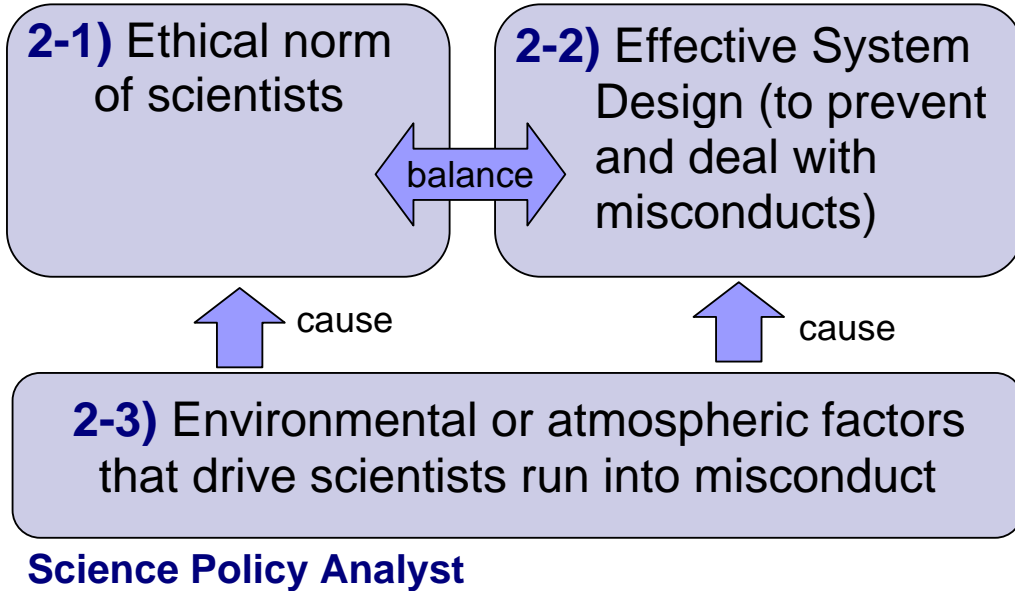
### **2-3) To prevent misconduct (in broader context)**

Although the above two countermeasures (the approaches through a scientist's autonomous action and through a funding mechanism) are immediately necessary steps to regain the public trust on scientists and science itself, they may not be sufficient enough. From this perspective, the OECD *Global Science Forum* also decided to seek the more fundamental way to prevent scientific misconducts, that is, a re-thinking of science policy itself. The environmental or atmospheric factors that drive scientists into misconduct would be studied by an international experts group. It was thought that such factors would include too severe evaluation, too competitive, "Winner takes all" funding system, "Publish or Perish" researchers-hiring system, and so on. Moreover, if possible, the policy that reduces these types of causing factors would be considered and proposed.

The above three countermeasures are related with each other. The below figure show the relationship.

**Scientists, Academy, Association...**

**Government, Funding agency, Each research institute/university...**



#### 4. Expected Outcome and Schedule

The expected outcome of the OECD project is as following:

- Survey on major misconducts and its countermeasures in member countries
- Case study and make a good-practice list
- Exchange of view (workshop)
- (Up to the progress of this activity) OECD's recommendation or guideline that each government or research organization can use and apply.

The OECD project is now scheduled as following:

- After a positive outcome of discussions at the 14th GSF meeting (Feb 6-7, 2006), an international expert group is now on the way to be organized. The group shall be lead by a few core countries, including an initially proposing country Japan. Korea has also promised to nominate an appropriate expert to the group. The group would discuss how to refine and focus the initial proposal.
- Consultations of *Experts Group*, via e-mail and tele-conference, would result in a detailed workshop proposal for presentation at the 15th GSF Helsinki meeting (July). If possible, considering that the immediate action is now required, the group may conduct a preliminary survey on the current status of scientific misconducts in several OECD member countries until July GSF meeting.

## 5. The Implication to the National Context

Then, what implication does this new OECD project have to the national context, such as Japan and Korea? Or, from what sense did Japan initiate this OECD project? Before answering these questions, I would like to explain the domestic situation around scientific misconducts.

### 1) Japanese situation in brief

The issue on scientific misconduct is also a hot issue in Japan, especially in these several months. Many of people science community worry if the previous public trust on scientists and science itself may be lost to some degree. In order to regain the public trust, several countermeasures are now considered, although many countermeasures have been already established by some research institutes and funding agencies.

The first countermeasure came from the Science Council of Japan (SCJ)(日本学術会議), a public institute to represent the scientific academies. SCJ sets up a special committee in 2005 December (Chaired by Prof. Makoto ASASHIMA (浅島 誠) [Vice President (副会長) of SCJ]). The committee is now discussing the code of conducts for scientists and plan to draft the code by this April. They also try to revise the “*Charter for Scientific Researchers*” (科学者憲章), formulated in 1980, to consider the misconduct issue.

The other action came from Ministry of Education, Culture, Sports, Science and Technology (MEXT)(文部科学省) of Japan. The advisory board to minister, the Council of Science and Technology (科学技術・学術審議会)(Chaired by Prof. Ryouji NOYORI (野依 良治) [Novel Prize Awarded, Chemistry, 2001]), also set up a special committee on the 1<sup>st</sup> of February. The committee is planned to discuss how to reform the ministry’s competitive research fund to reduce misconducts effectively. The outcome of discussion shall appear this summer, and will be from the next budget year.

### 2) The implication of the OECD project to Japan

As seen in the above, Japan is now trying to strengthen concern on the scientific misconducts. Our main concern is, of course, on the domestic issue, that is, how to regain the trust of Japanese citizens on scientists and science. However, it is natural for us to take the international situation into account. We think that such an international discussion in OECD is closely related to our domestic situation.

The most practical reason why we are interested in the international discussion is to understand the international situation on this issue and to find *de facto* countermeasures in this field. Unless we know what happens internationally, our domestic discussion may miss the real issue and our domestic action may be apart from good countermeasure practices. If the countermeasure in Japan is weaker than in other countries, it may not be enough for us to regain the trust of Japanese citizen.

The more positive reason why we ask OECD to initiate actions is to inform our sincere domestic action to other countries. We feel that we started the immediate action to deal

with scientific misconduct (earlier than other OECD countries). The introduction of our immediate actions to other countries through the international arena can help the Japanese scientific society to receive more trust internationally.

For this purpose, Japan had a key role to initiate a new OECD project on scientific misconduct. We imagine that the reason why Korea supported our proposal so keenly at the OECD *Global Science Forum* meeting is almost same.

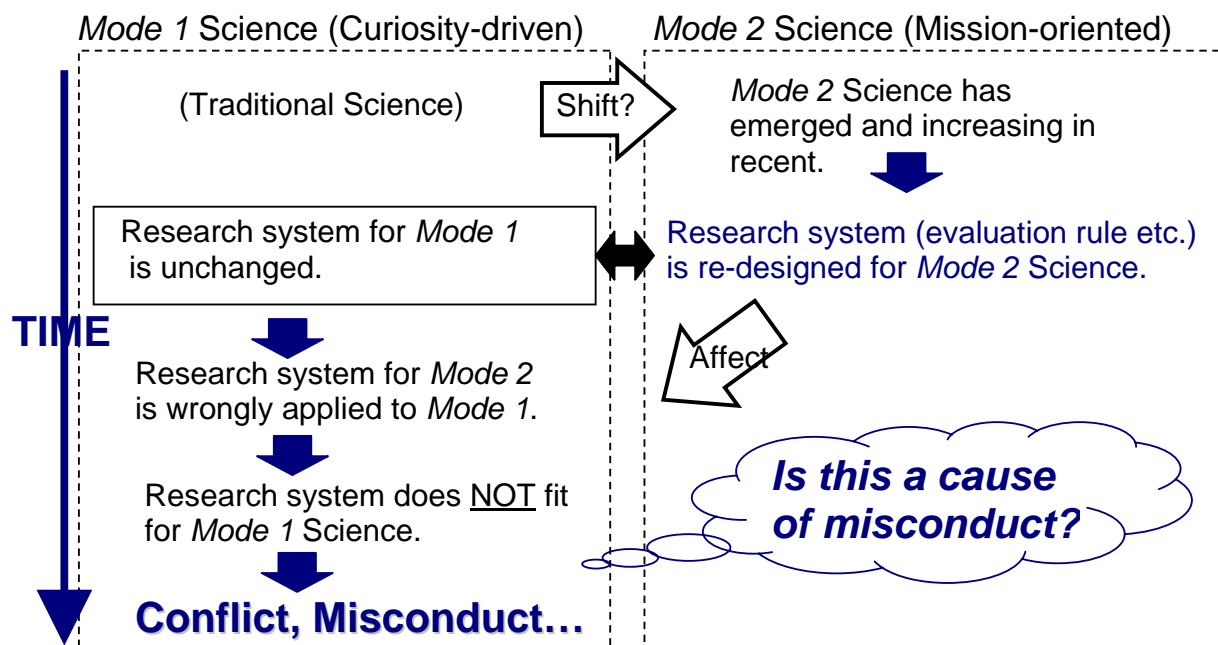
### **3) Note on the uniqueness of the national situation**

As implications of the OECD project to the national context, there were two interesting discussions at the OECD *Global Science Forum* meeting. It seems valuable to introduce here.

The first discussion is concerned about the “mode of science”, which is a STS terminology coined by Gibbons *et al.* Based on the STS knowledge, the recent scientific misconducts may be a result of the rapid shift of “mode of science”. As insisted by STS experts, the mode of science is thought to shift from mode 1 (curiosity driven) to mode 2 (mission oriented) with increasing the scale and complexity of science. At the same time, the science system including the method of evaluation has shifted with the shift of mode. However, in this process of shift, there is some confusion. The newly designed science system for mode 2 (e.g. short term, result oriented evaluation on researchers) is sometimes wrongly applied to mode 1 science. This misuse of science system may be one of sources to create scientific misconducts. In some countries such as Japan (and probably Korea), the change of mode would have happened very rapidly. If so, these countries must be more careful on the misuse of the science system to deal with scientific misconducts.

The second discussion was on the national culture around scientific misconducts. In some countries (e.g. Germany), the scientific community itself is believed to play a key role in an autonomous way. In other countries (e.g. Nordic European countries), the government has a clearer role to conduct countermeasures. How to combine these two countermeasure approaches depends heavily on the national culture of science. We should recognize that the best and unique approach does not exist. Asian countries such as Japan and Korea have their own tradition of science community. While we look at the international context, we should not forget this factor of national culture.

Hypothesis: Mode of science



### Concluding Remark

Scientific misconducts are not really a domestic issue, but a global issue. If major countries do not simultaneously take an action against scientific misconducts, the public trust on scientists and science itself can be endangered. That is why Japan contributed to launch the new OECD project. The project can be also beneficial to domestic policy discussions. The OECD expert group shall be launched soon. We hope that Japan and Korea, as only two OECD member countries from Asia, can play a significant role to lead the OECD discussion.