

## East Asian STS: Some Critical Issues

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Roundtable discussion about the position paper of EASTS journal (Taipei, August 7, 2007)

Prof. Fu Daiwie's paper addresses two important issues: (1) he compels us to reconsider the center-periphery relationship from the perspective of East-Asian historical and social experiences; and (2) he highlights the concept of "new appropriate technology" in connection with the social practices of East Asian STSers. I believe that these two points are very stimulating and give some fresh insights on the scope and activities of our new discipline in the future. Agreeing generally with the spirits embedded in these proposals, I will propose my own opinions on these issues, which I hope will strengthen and supplement Prof. Fu Daiwie's proposals.

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On the first issue, Prof. Fu Daiwie has critically examined a recent revisionist trend in postcolonial STS and other academics fields, which has blurred a distinctive boundary between center and periphery. I liked Daiwie's provisional conclusion that, given the inequality of power, analytical categories like center and periphery, and notions such as dependency and dominion, should not be considered to be totally meaningless or as something that we should abandon. I agree with him, but I also think that we, living in the early twenty-first century, have a reason for using such notions and categories in a more careful and restricted manner.

For example, 25 years ago, the notion of the "dependency of science and technology" (科學技術從屬) used to be very popular in Korea, especially among the Korean science movement group and some social scientists. However, the term is now rarely used. Regarding science and technology, the only areas where this notion of dependency is still useful are the following: first, the dependency of scientific instruments on advanced countries, where 67% of the scientific instruments used in Korea are imported abroad, and second, the dependency of science and technology upon capital (not particularly Korean capital but global capital). But these phenomena are not the typical issues discussed in the traditional dependency theory. Traditional categories like center and periphery or the idea of the dependency of periphery on center is not a useful analytical concept today, or at least not so useful as 25 years ago.

Of course, in order to avoid whiggism, we should not impose our present interest upon our historical and sociological analysis of the past science and technology. It is, however, also true that all the ideas and conceptual categories that we use in our historical and sociological research reflect our own intellectual, cultural, and social contexts, in which we choose research topics, interpretative ideas and analytical frames. For example, the popularity of the idea of dependency of Korean science and technology on developed countries during the 1980s reflected our deep concern about the dependency of Korean politics and economy on advanced countries like the US. In fact, in the 1980s, social scientists, who were willing to adopt the dependency theory of Latin America, argued that Korean science and technology would not develop much, but would permanently remain stagnant due to its dependency. But even at that very moment, Korean science and technology was being advanced rapidly.

Of course, we naturally think that the center-periphery would be valid for the colonial period, but before applying this dichotomical category to colonial science and technology, we need to examine the complexities, diverse influences, various local "centers of calculations" and the inequalities and dominance of power which shaped the science and technology of colonies, and then critically examine whether these complex pictures fit with the center-periphery model. If there is any discrepancy, we should think how we can change the model to fit with the historical realities. From this kind of historical analysis combined with sociological insights, we, East Asian STSers, can contribute to the better understanding of how science and technology took distinctive paths of development in the colonial and post-colonial contexts. Here, I think, lies a point where the contribution of East Asian STS can be made beyond the boundary of East Asia.

As for the second issue, I fully sympathize with Prof. Fu Daiwie's attempt to couple academic STS with social practices. The inclination of STS to social practices

has been strong in Korea, as well as in other European countries. Several scholars of the first generation of STS in Korea came from the science movement, the environmental movement, and the scientific workers' union movement. Even today, Korean STS is strongly linked to the Citizen's Science Democracy Center and Alternative Energy Center.

However, activists are not the only group who are interested in social practices. The STSers who are not social activists can also be concerned about some kinds of social practices, because examining science and technology in a socio-historical context usually encourages us to think about an alternative path that science and technology would have followed had the situation been different. We all take it for granted that the development of science and technology is context-dependent, and it is natural to assume that if we can change our own socio-cultural contexts in which science and technology evolves, then the trajectory of some sciences and technologies can be changed as its consequence, leading to an "alternative science or technology".

To discuss alternative technology in any meaningful way, however, we should first think about "alternative to what"? I will relate some Korean examples. The governmental R&D budget in Korea in 2007 is over 10 billion dollars; it is the world 8th biggest budget. The governmental R&D budget is only 24% of entire R&D money; 76% is spent by private companies. Samsung's R&D budget is almost 70–80% of the governmental budget. The problem with this is that few people, including eminent scientists and engineers let alone STS scholars, know what is going on with this budget; how the budget is allocated, who decides on the national R&D program, and so on.

In total, more than 30,000 R&D projects are going on in Korea every year with the governmental budget. Which one, among these 30,000 projects, is really useful for our society? Which one is useless? Which one is explicitly harmful? Which one is potentially dangerous or risky? Every scientist and engineer claims that his/her research topic is the most important and interesting one, and peer scientists and engineers, and in most cases influential scientists and engineers, decide which projects should be funded. Bigger national R&D programs are designed by bureaucrats with the help of influential scientists. Big projects are sometimes chosen and supported for political reasons, too. In my opinion, however, no single scientist nor bureaucrat nor even the minister of science and technology can control nor even comprehend the whole system.<sup>1</sup>

Given the size and complexities of today's scientific and engineering R&D projects, it may be natural and even desirable that we give up John D. Bernal's early dream that science and technology should be centrally planned to obtain the public good. At that time, the R&D budget was far less than 0.1% of the nation's GDP, but it's now more than 4% in developed countries. The size of scientific and engineering work has probably grown more than 100 times since 1939 when Bernal published

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<sup>1</sup>The philosopher of technology, Davis Baird, once made an interesting comment that no one today can be said to completely understand the AT&T's telephone system, since it has been developed by so many engineers during the past hundred years, adding new components to the old ones. He said that in this sense, some technological systems are beyond human control or understanding.

his monumental *Social Function of Science*. The social practices of STS today must reflect this fundamental change in scientific and engineering practices.

Prof. Fu Daiwie noticed very acutely that controversies over technology characterize East Asian STS. I think it's because this huge system of scientific and engineering R&D is designed and executed in a centralized and bureaucratic way, without fully addressing their practical consequences upon the society beforehand. Most ordinary people and many STSers become aware of the existence of scientific R&D projects, only when they create some kind of social trouble or noise. It is partly because of the inherent impossibility of predicting the consequence of uncertain scientific research, partly because of the hastiness with which the projects are designed in globally competitive environments, and partly because there are too many researches going on. But whatever the reason, STSers should think about very deeply how we should, and can, touch, intervene, or interfere with this whole process. You can call this intervention as you like: "science democratization", "technology assessment", "ELSI", "citizen's participation in science and technology", "critical evaluation of national R&Ds", "alternative technology", and so on. More important than this naming is that we should make our historical and sociological research anchored in these urgent and important issues of our present society. By doing so, we would be able to persuade not only the scientific community, but also the bigger academic community and the public in general, about the usefulness or at least about the practicality of STS.