

**T. Kojima, Kagakugijutsu to Risuku no Shakaigaku  
Sociology of Science, Technology, and Risk, Tokyo,  
Ochanomizu Shobo, October 2007, v+393 pp (Available  
in Japanese only).**

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Received: 31 May 2008 / Accepted: 31 May 2008 /  
Published online: 10 January 2009  
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This book is one of the few ambitious works written by young Japanese sociologists of science and technology. Based on modern social theories, with critical reference to American and European sociology of science and technology, it focuses on the problems and hazards caused by the development of science and technology and on the prospects of “subpolitics” that countervail them.

This book consists of an Introduction, Part One (four chapters), and Part Two (six chapters). Part One, “Sociology of Science, Technology, and the Risks,” illustrates how modern social theorists discuss science, technology, and risk. Further, it critically reviews the literature pertaining to sociology of science and technology and the practices in science, technology, and society (STS) movement. In Chapter 1—“A Review in Theories of Risk Society: Individualization and the Limitation of the Systems”—the author tries to synthesize the theories of risk put forth by German sociologists Ulrich Beck and Niklas Luhmann. In addition, relying on Beck and some examples in the Japanese society, the author points out that “subpolitics” are becoming more prominent in risk societies.

Chapter 2, “An Inquiry into Public Understanding of Science: Some Examples of Medical and Environmental Problems in the UK,” traces the history of the public understanding of science (PUS) in Britain and summarizes its motive as “shortage of participation” by public. The author insists on its perspective being insufficient because its premise is based on the possibility of voluntary participation. People in the modern societies are suffering due to the hazards caused by science and technology. The most important agenda proposed by the author is how we can escape from the situation of unavoidable involvement and acquire freedom from the problems in science and technology.

Chapter 3, “An Application of the Theory of Public Sphere to Sociology of Science and Technology,” based on Jurgen Habermas’ concept of “public sphere,” criticizes the consensus conferences in science and technology held in Japan. The

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author regards the PUS movement as significant, in that it corrects Habermas' observation that in the modern societies the "system" which instrumental rationality and formalized knowledge occupy has been colonizing the "lifeworld," the arena of the living experiences in everyday life. According to the author, the Japanese political measures influenced by the PUS movement do not function as effectively as those in Britain. The consensus conferences in Japan were, by and large, initiatives of the political administration and lacked critically monitoring mechanisms. He characterizes the Japanese versions of consensus conferences as fakes of public spheres concerning science and technology.

Chapter 4, "An Application of Theories of Civil Society to Sociology of Science and Technology: With the Author's Experience of Fieldwork in a Non-Governmental Organization for Science and Technology," compares the situations surrounding the non-governmental organizations in Europe with those in Japan. First, the author outlines the rise and fall of science shops in Europe. Then, he presents the profile of a Japanese non-governmental organization (NGO) for science and technology named *Kokudomondai Kenkyukai* (literally translation: The Study Group for Problems in the National Land, Japanese abbreviation: *Kokudoken*), which is one of the key actors in the case study described in Part Two.

This NGO, established in the 1960s, with the aid of specialists ranging from scientists and engineers to lawyers, has been investigating various problems which resulted from civil engineering projects, including development of dams, urban development, and road traffic systems. Different from most of the science shops in Europe, its finance has been independent of public supports.

Part Two, "A Case Study of the Litigations against the Inundations Downstream of the Tonoyama Dam, Built across the Hikigawa River, Wakayama Prefecture," describes, in detail, how the residents protested to the local governments and an electric power firm about the floods after the construction of the dam, and how both the two sides contested the presentations of scientific data on the cause of the floods through lawsuits. Engaged in the activities of the *Kokudoken* as a member, the author collected materials and interviewed the members of the *Kokudoken* and the residents who suffered the floods.

The dam in this case was constructed not for water supply or flood control, but for hydroelectric power generation only. It was constructed in one of the areas that suffer the largest precipitation from typhoons in Japan, and started its operation in the midst of the 1950s. At that time, Japan witnessed such a high economic growth rate that it was expected that the demand of electric power would increase drastically.

Chapter 5, "The Prehistory of the Litigations," describes how often the river downstream of the dam flooded just after it had been constructed. When the amount of rainfall is significant and the water level in the reservoir increases, then the operators open the gates and discharge water from the dam to prevent it from collapsing. As a result, the amount of the flow downstream also increases, and this often resulted in inundations. What matters here is whether the time of the decision to open the gates and the amount of water discharged are appropriate from a scientific and an engineering point of view. The author points out that, as early as the flood which occurred just after the construction, the professionals and the electric power firm were incapable of recording the data and its analysis in the investigation into the flood entrusted by the prefecture.

From chapters 6 to 8, a series of litigations are documented, including the activities by the *Kokudoken* to support the residents in the litigations and to investigate the causes of the floods for the production of the evidence. The judgment on the litigation against the inundation in 1990 (the first litigation) was completely in favor of the defendants, the electric power firm and the prefecture, and it rejected the assertion by the plaintiffs, the residents. The plaintiffs could not obtain any support from experts in this first-instance trial because most of the river constructions are ordered by governments and Japanese electric services are nearly monopolistic in each domestic area. Therefore, almost all of the researchers into river engineering necessarily have strong relationships with governments and firms.

The plaintiffs appealed against the decision and got the support from the *Kokudoken*. After the investigation of the concerned flood by the *Kokudoken*, it was revealed that the data and the facts presented by the defendants about the amount of flow and the operation of the water gates included some inconsistencies. However, the plea by the plaintiffs was rejected in the appellate court. Nonetheless, they immediately filed an appeal in a higher court, but it was dismissed. Prior to this appellate decision, the residents filed a new suit because they were suffering due to the floods during the trials.

In the second litigation, they turned the issue into a different point. The new point was on the damages from the sludge that the dam discharged. When the dam discharges water, the sludge at the bottom of the reservoir flows out simultaneously. Moreover, it damages the agriculture in the downstream area. Both the sides in this lawsuit submitted four (two each) written expert accounts to the court. Interestingly enough, the defendants' statements lacked data on direct observation. On the other hand, the plaintiffs collected the sludge from the reservoir.

The judgment on the second litigation rejected the complaint of the plaintiffs again, but this time they did not appeal to the higher court. Some of the reasons behind it were the low possibility to win the suit and the ageing of the plaintiffs. Another reason was the ongoing improvement in the river, which might be the result of the lawsuits functioning as demonstrations against governments. Even if the residents as plaintiffs strive to prove their insistence as appropriate based on thorough scientific evidence, it is often the case that they lose the lawsuits concerning inundations. The author maintains that one of the reasons of the unfavorable verdicts passed against the residents is due to the low awareness of the Japanese judiciary with regard to the matters concerning science and technology.

This book is one of the few attempts by sociologists that bridges the gap between legal and scientific matters. Sheila Jasanoff's work (Jasanoff 1995) is one of the few exceptions among the famous works pertaining to this issue. The author deserves praise for conducting an energetic investigation including fieldwork and study of river engineering, and a detailed description of the scientific data and the processes of the lawsuits. Despite the enormous amount of effort put in the investigation and writing the book, it is regrettable that the conclusion is entirely stereotyped. Towards the end of the book, the author mentions, "We cannot help realizing that the victory of the logic of the modern industrial society implies the disintegration of this logic itself" (p. 345).

From the reviewer's perspective, the reason for the unsuccessful conclusion is derived from the poor knowledge of related sociological literature besides sociology

of science and technology. First, though the theme of this book is about risk and society, there are very few references to sociological literature in risk except for the German grand theorists. If the risk in modern societies is truly an important problem, many of the sociologists ought to have already contributed to this topic. This is the case.

Second, I cannot understand why the author does not refer to Philip Selznick's classical work on the land development of a river basin, including installment of dams (Selznick 1966). It is the most important preceding investigation into the interplay between the public agencies and the residents.

Third, the author is not aware of the trends and traditions of Japanese sociology. Besides sociology of science and technology, there have been an increasing number of good works that study the relationships between residents and technoscience in various fields such as environmental and regional sociology. Funabashi et al. (1985) is one of those examples. With respect to sociological investigation into dam development and its impact on the regions, a number of large-scale research projects were conducted in the 1960s (e.g., Nihon Jimbun Kagakukai 1958). There were several projects the purpose of which was to clarify the changing situations of everyday life under the ongoing technological innovations in workplaces and regional communities in Japan.

Finally, the author should have referred to the theoretical literature written by the Japanese sociologists, which focuses on the strained relationships between the contested systems of knowledge, for example, between the institutions in the industrial society (governments and firms) and the people as residents or consumers (e.g., Shiobara 1976).

Before being critical of what may be frauds committed by experts in authorized institutions, all we have to do is to respect preceding investigations conducted by our own academic traditions including related disciplines and make the most of them in our study so that we are not labeled as frauds.

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