

Interview

Scientific Evidence is Needed to Determine Policy

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—In the past year, the nature of politics and science has been questioned in the process of countermeasures against the novel coronavirus disease (COVID-19). Scientific evidence is now widely acknowledged as being necessary for the policymaking process. What are your thoughts on the current situation?

Yamagata: The concept of what constitutes scientific evidence is gradually changing. In the medical field, we came up with evidence that vaccines and treatments work for tuberculosis, but for chronic diseases such as hypertension, there are several reasons to consider. It all comes down to chance in terms of how many individuals will be treated, controlled, or mistreated. As scientific data shifts from a definite that would work to the theory of probability, the general public and researchers may have a different interpretation of evidence, even though the scientific evidence is done in the same manner.

We must therefore analyze the limited information available to us during the policymaking process. The topics we need to learn about vary from time - to - time, as does the information we have at our hands. The scientific evidence that was available six months ago is evolving as new information is included. We need a system that allows us to develop the best policy for the moment and have citizens adopt it, which currently does not work very well due to differences of opinion. That, I think, is what is coming to the top.



Without predictions, we wouldn't know what to do.

—For example, I think that Professor NISHIURA Hiroshi of Kyoto University's simulation was not fully applied to policy this time, and when the state of emergency was proclaimed in 2020, the prediction was questioned for being inaccurate after the infection had decreased.

Yamagata: Predictions are made because they are appropriate at the moment, and whether they come true or not is irrelevant. But we wouldn't know what to do if we didn't have predictions. There is a significant difference in what we will do depending on whether we have a prediction or not. Dr. NISHIURA's model is incredibly simplistic but provides a high level of estimation, and he has proposed a revolutionary preventive approach for infectious disease control in Japan. Estimates that include economics are still available nowadays, but the conclusions vary because the model's elements differ. This is understandable given the difference in objectives.

In the spring of 2020, the government was the first in the world to say, "Three Cs (Close space with poor ventilation; Crowded place with many people nearby; Close-contact setting such as close-range conversation.)". This was due to the massive infection analysis. It was a clear example of linking scientific evidence to policies in the form of infectious prevention based on this study.

—In a sense, we were able to suppress the first wave, and this may have left the issue of the relationship between science and politics unresolved, with politics often hidden behind science and science read what politics was implying.

Yamagata: I think that is the difference between the roles of scientists and politicians. Originally, countermeasures against infectious diseases and running the economy are not opposed to each other. Infectious disease prevention is directly concerned with life, while the economy is also associated with life. We must see it as a complete solution. We cannot, however, calculate intangible factors or generate numerical statistics. The limitation of science is that it can only analyze things that can be measured, such as the number of infected people or the number of effective reproductions. Nevertheless, scientific progress is progressing very fast, and the number of things that can be viewed as science will increase in the future. In this aspect, I can say that it was a year in which we saw our challenges.

The second phase aimed to provide an opportunity to connect to policy.

—Evidence-based Policy Making (EBPM) is a method of making policy decisions based on evidence rather than experience and intuition. Also, the "Science for Policy" research program, which began in 2011, aims to promote research into EBPM implementation. Following the first and second phases, the third phase will open for applications in 2021.

Yamagata: In the first phase, we had a relatively high budget for research, but in the second phase, we are aiming for research that can contribute to policy, so the research budget for each research project has been limited. In the first step, for example, the FURUTA Project at the University of Tokyo's research on disaster resilience was extremely important, but it was not easily linked to policy. I think we need to engage with the government more, which is why we are trying to organize information and making it more understandable, even though media such as this Policy Door. I think the NIAHIURA Project was approved because the researchers made an effort to take an approach that was close to the needs of the government, as well as because there were medical technologists involved who connected the research material with the government.

In medicine and healthcare, there are several levels of evidence. The highest level of evidence is review articles that gather interventional studies on people, such as Randomized Controlled Trial (RCT) studies. Following it are articles on the intervention studies themselves. Along with this are follow-up observational studies such as cohort studies, comparative studies of a control group known as case-control studies, and case reports. The use of evidence seems to have been well recognized under the circumstances of the new novel coronavirus disease (COVID-19). However, there are aspects of Ethical, Legal, and Social Issues (ELSI) that cannot be addressed solely by science before social implementation, and merely providing evidence is insufficient to represent science and technology innovation in policy. The importance of intermediaries between science and policy is now more important than before.

For example, in the second phase, there was research into how to communicate about advanced science. Previously, science and technology communication involved delivering lectures and creating content for people to understand, but the MINARI Project has developed a new mechanism to ease the feeling of "difficulty and anxiety" and make people's interest in science and technology by including the aspect of art. The second phase of the KAJIKAWA Project explained the evidence difference between

researchers and policymakers and proposed the need for communication that acknowledges this difference. The KATO Project, which is currently in progress, is trying to produce results by developing a mechanism to realize a patient-participation approach to research on intractable diseases, in which the researcher-patient relationship is not one of researcher and patient, but rather one of the patients themselves participating in the research. I think we are doing that in the second phase.

The utilization of information is also extremely important, and the ABE Project is working on how to have the government release a variety of information and how to use it to create evidence, rather than just having the researchers themselves obtain the information. I think we can find a way how to enable local governments to share the data they have.

The theme for the third phase is " Co-Evolution" with the government.

—In such a trend, what kind of proposals do you expect to see in the third phase?

Yamagata: We are accepting applications on a variety of topics, but in terms of connecting to policy, I would like to see applications that include the perspective of policy in addition to the perspective of specialized research, and that includes in the research team intermediate personnel who understand or can understand the policy and who can connect research and policy. In other words, we are looking for evidence that relevant to policy, not just evidence from a research perspective.

Many research topics have previously been based on seeds, but in the third phase, I would like you to include the perspective of "Co-Evolution." We will set a theme that policymakers are looking for, and if you can contribute effectively your research results to that theme, you will be able to connect it to policy more easily. We hope you will

apply enthusiastically to connect your research to policy.

Policy science is also a small community, but the benefit of this program is that it is not too small and that researchers from a variety of fields are participating. It is easy to criticize this program for having so many different themes, but on the other hand, this program has led to a phenomenon in which individuals who have never been interested in policy science before applying for the program, thinking that it is a very important field. The YOKOYAMA Project, which ended this year, was an example of this. Dr. YOKOYAMA was not an education policy expert, but she did an excellent job of uniting various experts and fostering female researchers in mathematics and physics, with the idea that unless we do this properly, Japan will have no future.

--Thank you very much.
(Written by MAEHAMA Akiko)

Japanese : <https://www.jst.go.jp/ristex/stipolicy/policy-door/interview-04.html>