Janus Hansen: Biotechnology and Public Engagement in Europe
Palgrave MacMillan: Basingstoke, England 2010. 240 pages

Hansen's book concerns the concept of Participatory Technology Assessment (PTA) in the regulation, governance and formulation of national policies towards Genetically Modified Organisms in the agricultural sector. His work presents something of a 'coming of age' for the study of citizen involvement in the governance of science and technology in Europe. Much of the early contributions from STS and geography scholars to the practices and theory of PTA focussed either upon methods and tools for building two-way communication between technical specialists and lay citizens, or else upon strategic and normative arguments in support of inclusive deliberation. The common theme emerging from much of the existing literature is a consistent call for governments to cede (some) control of technological programmes to citizen actors and other stakeholder groups, for various reasons ranging from cost savings, the amelioration of public distrust in scientific authority and the rights of the individual to be directly involved in technology decisions. Hansen's work offers a rather different approach to this well-established trend in the STS literature. Rather than presenting another methods manual or philosophical treatise on deliberative democracy, he puts forward a comparative sociological analysis of UK, Danish and German attempts to engage citizen actors with agricultural biotechnologies. His analysis reflects a growing trend in the public understanding of science literature, away from the model of trying to communicate technological risks to a supposedly science-illiterate public, towards turning the analytical lens onto scientists and technologists to see how 'science understands the public', and how notions of publics are operationalized by technical actors. He uses a range of analytical techniques in achieving this aim, including textual analysis of policy documents and news reports, and primary research materials in the form of interviews with stakeholder actors involved in public engagement from industry, civil service and academic organisations.

Overall, Hansen uses a discourse analytic approach and frame analysis in an effective way to compare across the different institutional contexts. The use of an explicitly empirical approach to these problems is refreshing, and the comparisons are comprehensive and well structured. The separate chapters on Danish, UK and German experiences are clear and detailed, and each provides a comprehensive overview of the individual case, the actors and processes involved and the challenges faces at a domestic level. The book's closing chapter synthesises a framework for examining these domestic political contexts back into a pan-European framework, and the conclusions are insightful, both for the theory and PTA practice.

What may be of particular interest to STS scholars are how the differences in institutional context shape the expectations and outcomes of public engagement exercises around GMOs in each country. Hansen compares the outcomes of the United Kingdom's 'GM Nation?' public debate of 2002, with Germany's Diskurs

Grüne Gentechnik (discourse on green biotechnology) in 2001, and the (at times contradictory) BioTIK initiative (an expert ethics committee) and the more citizen-focused Consensus Conference approach of the Danish Board of Technology. These national contexts throw up different challenges based upon the regulatory and institutional culture of the respective bodies in charge of the PTA in question. In the UK case he identifies 'inclusiveness' as the main issue. The open meeting format of the 'GM Nation?' meant that exclusionary measures were needed to prevent the 'usual suspects' of certain GMO and academic interests to dominate proceedings, and thus provide politically representative views across the spectrum of public interests. In the German case he identifies 'mediation' as the key issue, as steps were taken to avoid hostile argumentation, bargaining and other Habermasian modes of strategic rational communication amongst the actors involved. In the Danish case the emphasis is upon the concept of 'resonance': how do problems emerge in transferring issues, such as inclusiveness and ethics that surface in the Consensus Conference, to problem framing approaches of actual policy making and techno-scientific innovation? Hansen skillfully weaves together these differences and reflects upon the inherent problems of moving from a participatory and deliberative public involvement process to the actual work of policy formulation and its ultimate impacts on the types of technologies that emerge in the marketplace.

One important reflection that he makes in his concluding section is upon the apparent failures of these different mechanisms either to substantively change the attitudes and values of the participants in these PTAs (through processes of social learning), or to bring social values into the technology governance process. In the latter case, one of the principal reasons for this failure is the mismatch between centralised European regulatory and policy frameworks for governing biotechnologies in the agricultural sector, and the national and sub-national spheres in which these PTAs took place. Hansen rightly identifies these problems with the experiments in deliberation as being rather disappointing to practitioners and theorists of deliberative democratic and participatory modes of science and technology governance. However, he does not go as far as to say that they can never work, and offers a number of substantive structural changes that could be made to increase the efficacy of such deliberative mechanisms to improve the social robustness of PTAs across the board.

If there is an overall shortcoming of the book it is that it speaks relatively narrowly around agricultural uses of GMOs when he refers to biotechnology - as other forms, such as synthetic biology, cloning and healthcare technologies that may be subject to similar participatory decision-making processes and regulatory frameworks are not mentioned in any substantive way. These findings could easily be taken further in informing wider debates around PTA in other forms of technological innovation beyond the biotechnology sector (such as nanotechnologies, energy production or geoengineering for example), and so this book would certainly be of interest to those devising PTA in those fields. Hansen's treatment of the relatively narrow subject is precise and informative, and this book would certainly be of interest to any scholar of GMO policy, PTA or technology governance, and may have a place as a teaching tool for those interested in technological risk and comparative case study analysis of technological controversies.

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