

Experience of TA Like Activities in Japan and agenda for the Future of Institutionalization and Practices

Hideaki Shiroyama
Graduate School of Law and Politics
The University of Tokyo

I . Attempts of Institutionalization TA as System Management (early 1970s)

- Japan Techno-Economics Society (JATES) members visited the US and found TA
 - Eight-Members Committee (1970): 'Spaceship Earth' (Boulding) - TA as a closed-circular technological system
 - Business sector: CSR for environmental deterioration, consumer movement and speculative activity
-> voluntary individual TA to more public exercise
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TA as Project Evaluation / Technology Foresight

- STA (1971-78) and MITI (1971-84) conducted TA case studies, but targets of the subjects limited

Project Evaluation

- STA: Sectional TA activities by planning bureau led to project-based evaluation (not covering jurisdiction of nuclear and space)
- MITI: TA as ex ante R&D evaluation

Technology Foresight

- STA: Focusing on the development of Delphi method
 - MITI: "Industrial Technology Development Long-Term Strategy"
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Political Contexts in the 1970s

- STA: Sectionalism and accountability
 - Limited incentives of planning bureau (beyond big projects such as nuclear and space)
 - MITI: Justification and social acceptance
 - Needed to demonstrate negative implications of technology in order not to be intervened by EA
 - Technology (e.g. nuclear) has to be accepted
 - EA: Interest in environmental assessment
 - Possible TA subjects include pesticide, leaded gasoline and PCB
 - Institutionalization of environmental assessment was more substantive and urgent
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TA as National Technology Strategy and Project Evaluation (since 1980s)

- In the mid-1980s some Diet members called for institutionalization of TA to improve efficiency of the investment in the research on nuclear power ship
 - The government had instead studied and promoted research evaluation since mid-1980s
 - Given the trade friction between US and Japan in the late 1980s, Diet members recognized the need for a national technology strategy (interests in national economic security implications of technologies)
 - Science, Technology and Policy Group (bipartisan) had tried to legislate a parliamentary TA organization for 5 years since 1995
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Features of Japanese TA(-like) Activities

- Methodology
 - Obsessed with systems (engineering) approach (TA as "evaluation of technology")
 - Lack of 'options assessment' and 'various stakeholder involvement'
 - A pioneer of technology foresight (Delphi) (and R&D evaluation)
 - Institution
 - Facilitated institutionalisation of foresight/evaluation in bureaucratic sectionalism
 - Some Diet members attempted to establish a parliamentary TA organisation to evaluate national R&D projects and develop national technology strategy, but abandoned
 - Industrial interest in TA to have latitude and demonstrate CSR was too limited to encourage a dedicated organisation
 - No institutions to guarantee independency so far (TA has been conducted mostly by technology developers)
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II. Food

Explicit TA Experience in Food

- The 1970s: Some experimental cases were carried out by STA and MITI (not by Ministry of Agriculture)
 - TA on pesticides by STA (1971): carried out by the Agricultural Chemicals Subcommittee within the STA TA Committee, comprehensive assessment of pesticide including the social aspects (society, culture, minds etc)
 - TA on Mariculture by STA (1973): contracted out to external body
 - TA on Microwave oven by MITI (1974): contracted out to external body
 - The 1980s to the 1990s: The blank period of TA
 - No comprehensive TA performed. Fragmentary assessments carried out by authorities' own mandates.
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Participatory TA experiments in 2000s

- The 2000s: Social controversy over food issues (BSE, GM), increased interest in Participatory TA. All cases were strongly influenced by DBT's Consensus Conference. These cases left issues, such as, how to manage the Conference (specifically, who should set the agenda to what level), how should the proposals of the conference be linked to policies body
 - STAFF (Society for Techno-Innovation in Agriculture) Consensus Conference (2000) and Citizens' Conference on GM crops (2001, 2002, 2003): funded by MAFF, under the *Research Responding to Citizen's Proposal Project*. Citizen's proposals were presented to the related ministries by STAFF. Some research on GM crops were initiated by STAFF in response to these proposals. body
 - Hokkaido Government Office's Consensus Conference on GM: held in order to reflect stakeholders' and citizen's views to the re-examination of the GM ordinance (link to Hokkaido GM policy explicitly)
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Fragmented TA activities under existing framework

- Risk analysis framework by FSC, MHLW and MAFF
 - Risk assessment (=Scientific Safety Assessment) generally effectively conducted by FSC for foods subject to pre-market authorization
 - Other aspects (=Social, Economical, political, cultural etc... considerations) are deemed to be taken into account by the risk management body (MHLW, MAFF and its related consultative bodies): performed on implicit and ad hoc bases with no clear criteria for assessment
- Assessment for R&D purpose by MAFF
 - The Agriculture, Forestry and Fisheries Research Council: in place since 1956
 - Main interests were in R&D for the producers, such as production efficiency, safety for industrialization.
 - only recently, the necessity for the assessment of impacts of technology on society was explicitly stipulated.

III. Health

The rise and fall of MTA in Japan

- White Papers
 - In 1974 white paper on science and technology, the word “technology assessment” appeared.
 - In 1990 white paper on health, the word “medical technology assessment” was used, it pointed to need broad-based discussion including ethical and economical issues.
 - Academic Discussion
 - In 1985 Medical technology assessment society was established.
 - Members; healthcare economist, doctors, anthropologist....
 - They aimed institutionalization of MTA in Japan
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The rise and fall of MTA in Japan

- MTA related attempts by Ministry of Health
- 1996 Advisory committee of health technology assessment was established in ministry of health
- 1998 Promotion committee of health technology assessment was established in ministry of health
- 2001 Advisory and support committee of medical information was established in Ministry of health
- 2004 JCQHC (Japan Council for Quality Health Care) turned over the role of committee of medical health.
- Decline of MTA in Japan
- Too much emphasis on economical assessment
- Realization of halfway EBM center
- Background; opposition by medical association

Fragmented TA Activities in Japan

- IRB (institutional review board):
voluntary
 - Drug lag problem claimed by patients and media
 - Japanese Health Minister decided increasing examination officers by 2011
 - Uncertain clinical evidence – conflicts of interests
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Fragmented TA Activities in Japan

- Economical assessment - decision process in medical insurance system
 - societal aspects included (effectiveness, safety, diffusion, ethics/ social acceptability, financial impact, comparison with other technologies)
 - But long-term process, some medicines and medical techniques are not insured by unclear reasons
 - Bio-ethical assessment by Council for Science and Technology Policy (Cabinet Office) - rigid agenda setting
 - Parliament - Act on Organ Transplantation in 1997 – lead by legislator Taro Nakayama - Bill sponsored by bipartisan group
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IV. Energy

Explicit Energy TA

- 19 Cases identified between 1971 and 1980
 - Most cases were sponsored by MITI, and a few cases by private firms themselves (e.g. Tokyo/Osaka Gas, Mitsubishi Electric)
 - MITI started with TA exercises on nuclear technologies (iron making, FBR)
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TA for Sunshine Programme

- Solar energy
Practitioners conducted TA by themselves following the Program framework, but complained about its technology-oriented nature (no link with energy efficient housing)
 - Geothermal energy
Started with macro analysis and examined 6 application systems and 8 regional models
 - Hydrogen energy
Taking TA as a communication route between technological development and the society, practitioners reflexively refined their analysis
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NIRA's Implicit TA

- National Institute for Research Advancement (NIRA): est. 1974 as a semi-governmental organization
 - Analysis and evaluation of nuclear power system in collaboration with Atomic Energy Society of Japan (AESJ)
 - The assessment covers environmental and safety issues on the development, fuel cycle and waste disposal, institutional settings and public acceptance
 - From systems analysis (1974-77) to long-term strategy formulation (1977-79)
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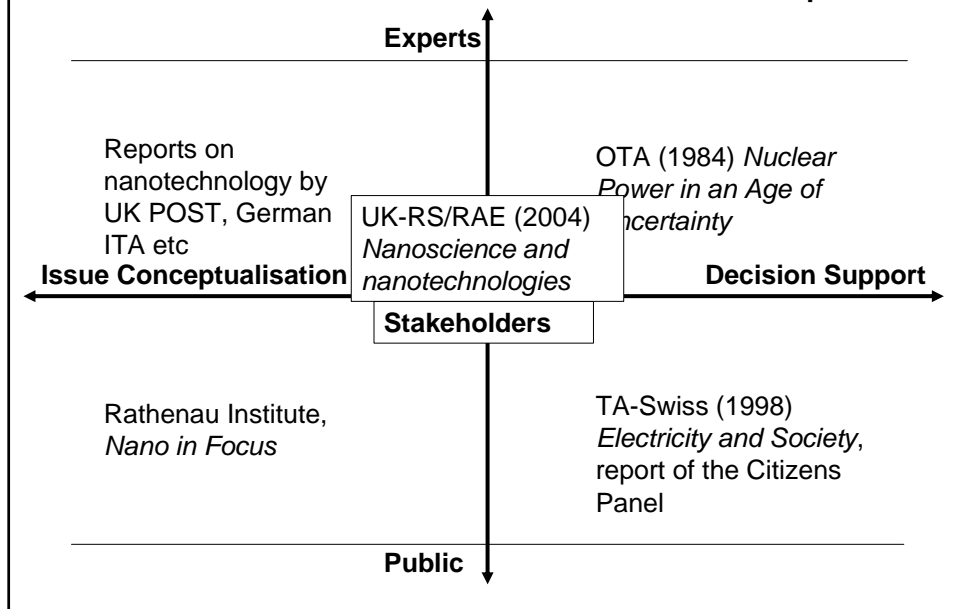
METI's Advisory Councils

- Societal aspects such as energy security, environment and cost are incorporated formally...
 - ACNRE (Advisory Committee on Natural Resources and Energy): basic plans (2003, 2007), forecast for energy supply and demand (2005, 2008), national energy strategy (2006), energy technology strategy (2007, 2008), innovative energy technology plan (2008), technology roadmap (2008)
 - Ultralong-term energy technology vision (2005)
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Atomic Energy Commission

- Long-term Plan (LTP): 9 phases, 1956-2000
 - New Nuclear Policy-Planning Council (2004-2005): *Framework for Nuclear Energy Policy* from short-term to long-term
 - Committee for public participation (2001-)
 - Subcommittee for fuel-cycle policy evaluation (2004)
 - Committee for policy evaluation (2006-): monitoring of policies in the *Framework*
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IV. Foreign Experiences TA Activities in the US and Europe



US OTA and post-OTA Era (1)

- OTA played a critical role in the support of congressional policymaking
 - Not only were reports useful, but informal communication between OTA and congressional staff was more appreciated
 - External advisory panel was utilised in OTA study. Carefully selected and balanced members deepened discussions by themselves with the support of OTA
- TA Board (TAB) members were to be bipartisan and bicameral although the agency was viewed as pro-Democrat
- Abolished in 1995 as a symbol of the “Republican Revolution”
 - The recreation of OTA has been consistently proposed but not realised to date

US OTA and post-OTA Era (2)

- TA-like activities are disseminated and undertaken by a wide variety of organisations (decentralized system?)
 - Governmental organisations such as National Academy of Science (NAS), Congressional Research Service (CRS) and Government Accountability Office (GAO)
 - Many in universities, think tanks and NGOs
 - Activities become more fragmented and specified, and less comprehensive and interdisciplinary
 - Partisan TA and advocacy TA are difficult to secure independency and neutrality
 - Legislation for each R&D can guarantee institutionalisation of TA under the name of ELSI
 - \$4 million for nanotechnology ELSI research (2008) ex. Arizona
 - Human resources development is tough where there is no institution dedicated to TA
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Parliamentary TA in Europe

- 1970s: Discussions started after several international affairs (establishment of OTA, OECD conferences). However, there emerged no policy transfer from the US because of different social and legislative settings (esp. relationships between government and parliament) and continued criticism of ambiguous and opaque purposes and methods
 - 1980s: Given serious impacts of science and technology on society and environment and high expectation of technologies to escape from economic stagnation and low employment, there had been growing debate on European TA, which resulted in the establishment of parliamentary TA organisations one after another at European and national level
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Features of European TA Organisations

- Small-scale in terms of budget and staff compared to OTA, but effective activities utilising research networks
 - More focus on problem findings or agenda setting and less on direct decision support
 - Emerging new TA exercises directed towards close communication with wide-ranging stakeholders and the public
 - In most cases TA was introduced first as a timed project and then developed in various ways to be adapted to national (social, cultural and institutional) contexts
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Lessons

- From the United States
 - OTA looked expert-based, but rather focused more on stakeholder involvement
 - In the Congress, there is a gap for analysis that is sensitive and responsive to congressional needs and that achieves balance, completeness, and impartiality
 - Networked TA activities in universities as ELSI research engage scientists and stakeholders but less influential in the policymaking
 - From Europe
 - It takes a decade to establish a TA organisation regardless of the scale and the context
 - Small-scale, networked, effective management with resource accumulation
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IV. Issues

Basic Issues

- Need for comprehensiveness (systemic perspective) or flexibility of framing (beyond ministerial jurisdictions)?
 - cf. Existence of inevitable broad perspectives on agriculture/food (ex. pesticide) and nuclear energy
 - Product of TA: Identification of multiple societal impacts (benefits and risks including unintended consequences) or weighting among societal impacts? – answers depending on the nature of politics pursuit – possibility of “Doshoimu” (sharing same bed with different dreams) or value politics?
 - What kind of policy process (new politics of S&T?) is expected for which TA is used as a tool? - What kind of institutionalization? Who are clients
 - cf. Clear purpose (agricultural policy) in the case of consensus conference in Hokkaido GM
 - Controllability of autonomous technology development cf. Reverse adaptation, difficulty of forecasting before embedding
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Basic Issues

- What “independence” and “neutrality” required? – independence from sectoral ministries, from cabinet/ruling parties, from government or from clients (concerning the identification of stakeholders); bipartisan (not independence from parliament)
 - Needs to have clear ideas what game we will play
 - Reactive to request of clients or it is necessary for TA organizations to be proactive? - Is it favorable to identify multi clients?
 - Necessity for combination and division of labor for institutionalization – ex. General TA can support establishment of HTA (the case of US)
 - Need for review and restructuring of existing governmental and quasi-governmental fragmented TA like organizations
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Institutional Options

- Parliamentary Organization
 - Governmental Agency (CSTP or Sector Ministries)
 - University
 - Quasi-Government or Independent Admin. Agency
 - Business Association
 - Network of fragmented TA
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VII. From TA to Policy Process Management for Sustainability

- What kind of policy process (new politics of S&T?) is expected for which TA is used as a tool?
 - Technologies as triggers for structural problems in each sectors – TA as visualization of various social impacts including structural impacts – visualization can stimulate oppositions
 - Sustainability as criteria for muddling through various societal impacts including trade offs by “Doshoimu” (sharing same bed with different dreams) and possibly inevitable value politics at some point
 - Similar to transition management and negotiated governance (meta-governance/ governance infrastructure) agenda
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Structural Problems in Each Sector

Food/Agriculture

Lack of spatial concentration - Keeping the numbers of part-time farmers- interests of agricultural cooperatives and politicians

Control of rice plantation and increased deserted agricultural land against the claims of multiple function of agricultural land

Medical/ Health

Surplus capacity of beds compared to the numbers of doctors and nurses – historical dual functions of hospitals including social security functions

Conflicts between Medical Association (made up of spreading small hospitals) and large university hospitals

Energy

Transition to decentralized energy system

Lack of collaboration between electric utilities and gas utilities

Possible Interesting Technology Introduction Cases

Food/Agriculture

Labeling and certification scheme – facilitating direct distribution to consumers stimulated by safety scandals

Price control to direct support of farmers – bypassing agricultural cooperatives

Cf. Katori (Chiba) and Furano cases

Medical/ Health

Medical electronic information system (visualizing the inefficiency of small hospitals and facilitating collaboration between hospitals and self health maintenance by patients)

Cf. Local collaboration

Energy

Construction of smart grid (adapted to decentralization)

Distribution of Electric Vehicle

Cf. Diffusion of heat pumps (using electricity and gas), Thermal energy in housing
