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UNIVERSITY INPUT INTO GOVERNMENT POLICY DECISIONS: IVORY TOWER AT THE STATE HOUSE

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The pages to follow describe an effort involving university researchers interacting with public decision-makers and agency staff to prepare recommendations on a specific issue facing the Commonwealth of Massachusetts. The issue is development of guidelines and procedures for using sewage sludge on land for agricultural purposes. The discussion will describe an interdisciplinary effort and an operating procedure for successful completion of a project. In the two-year process of this interaction, the authors gained more than the anticipated number of insights about modes of research and their relative chances for ultimate adoption. These insights are shared in the final section below.

Since we are believers in letting the reader know what to expect, we must admit that this is not a "scholarly" paper in the usual sense. We hope to entertain with some irreverent (but not necessarily irrelevant) observations about our experiences. There is a message to follow, but (with apologies to McLuhan) we hope the message will provide an occasional tickle.

The Phone Rings

The phone rings. "Good morning," says the Dean. ["Uh-oh," we think.] "There is a meeting, on sludge — or something, in Boston tomorrow. Would you accompany the Associate Dean?" "Yes, of course!" we say. ["Good Lord!" we think.]

Next day. Meeting appears to be the beginnings of a commission on recycling of organic wastes. The Secretary of Environmental Affairs presides, the state legislature is represented, some state agency people are there, and a consultant is trying to earn a living. The discussion focuses on horse manure and people sludge. A hopelessly inadequate and naive literature review is distributed. This sets the *flavor* of the discussion on sewage problems and alternatives. We think, "Give us a break — do things really happen this way?" We say a few words so the Associate Dean will be impressed.

Meeting nears adjournment; we begin wondering where a good place to have lunch might be. Suddenly, the Secretary of Environmental Affairs turns to the Commissioner of Agriculture, "Have you thought about who might direct this Commission?" "Yes," he responds, "have asked the Dean to recommend." Commissioner to Associate Dean, "Well?" Associate Dean to Commissioner, Secretary, and the rest of the world, "Yes, he says he has a couple of experts — economists — who will do nicely; namely,..." We go blank. Meeting adjourns.

A Commission is Formed

In January 1976, the Secretary of the Executive Office of Environmental Affairs of the Commonwealth of Massachusetts established a Commission on Organic Waste Recycling. Recognizing that potentially symbiotic relations exist between the rural (agricultural) and the urban sectors, the Commission was asked to study alternatives to the traditional methods of disposal of sludge and effluent which are economically and environmentally feasible, and to make recommendations. One of the primary alternatives examined was application to agricultural land by spreading or injection, and a Task Force[1] was established for this Purpose. The Task Force was composed of scientists, engineers, and others; from parts of the university, from public agencies, and private individuals.

Why Us?

Even before the Task Force work was underway, we had rather severe misgivings about being drawn into such an endeavor. The following perceptions may suggest why.

The State House

One sometimes wonder how government gets anything done. The mounting tide of bureaucracy may even reach the point where it becomes virtually impossible for anyone else to get anything done. The spawning of new agencies, the overlapping of responsibilities, and the mounting volume of regulations and paper work threatens to bring initiative and progress to a halt.

Bureaucrats write regulations on manure disposal whose closest personal experience with the problem has been putting the kitty litter in the garbage can. The agency titled "Sewerage" and the agency titled "Solid Waste" both claim sludge disposal as their area of concern and prepare different sets of regulations. The Department of Public Health claims primacy over all topics that potentially impinge on health.

Politicians pander to special interests. Laws are written without full recognition of their impact. Economic considerations are paramount in some instances and ignored in others. Rationality in decision-making is a random occurrence.

Petty bureaucratic power is often exercised. Regulations are nearly always open to interpretation depending on circumstances. However, such interpretation requires some modicum of judgment and analysis. Capricious determinations often occur. The official may opt to avoid this extra obligation and disapprove any unique or unfamiliar situation. Initiative is discouraged by the lines of authority.

Government distrusts the academic but accepts the findings of consulting firms even though the qualifications of the university personnel are impeccable. Consulting firms cultivate the appropriate government officials in an attempt to learn their biases and then provide the answers they want.

To be sure, public officials have their own views of the Ivory Tower.

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[1] The first author chaired this task force and the second was appointed executive director of the commission.

The Ivory Tower

The University is a medieval institution primarily concerned with imparting obsolete knowledge to an unwilling student body. Research is conducted to enable a faculty (composed of unworldly individuals who have never met a payroll) to attain the approbation of their peers and the stature of tenure.

University professors seldom venture out into the real world. The real world is populated by people who want answers to questions. The professor finds such real world questions repugnant; they involve too many undefined variables and uncertain confidence limits on those which are defined. Far better to deal with simplified models and experimental situations where answers can be given with statistical levels of reliability.

The professors (and the University) march to the beat of their own drums. The calendar is meaningless except for summer vacation. Things are let slide during the academic year because of the press of teaching commitments. "Manana" is the theme. Deadlines are never met.

The University is composed of separate enclaves of scholars. They seldom communicate or collaborate with one another. Economists go on their merry way minimizing or maximizing with little or no contact with agronomists, nutritionists, or other non-economists. Agronomists make recommendations that are not economically sound. Engineers create machines and structures that have unexpected and adverse impacts on resource use.

But we digress.

The Experience

It became apparent early in the life of the Task Force that strong leadership would be needed if the objectives were to be met. It was also clear that an environment would need to be created where meaningful inter-change could occur. Our approach was to organize the meetings of the Task Force as seminars. Subject matter specialists were responsible for the preparation of seminars treating the subject of sludge disposal on farmland from the perspective of their disciplines. Each seminar consisted of a presentation, a paper with literature review, discussion, and some tentative conclusions.

In the beginning, the quality of the discussion was nothing to boast about.

Boston has been dumping
its treated waste, you see
Several miles to the East
Oh yes, in the sea.

But "Foul" cried the agency
concerned with pollution
An EPA nix
on solution by dilution.

When state officials began
to meet all together
The ensuing discussions
ruffled many a feather.

For solutions they collectively
sought to find
Many came armed
with axes to grind.

Ground and surface water
is my sole concern
Said the water engineer
the answer is to burn.

A fearless one said
let's put it in the dump
Then all of our wastes
will be in a lump.

Snapped the Solid Waste man
I can't believe my ears
There will be no more space
in a very few years.

My God, you people
have your heads in the sand
Said the man from agriculture
let's put it on land.

Alas, cried the Health person
consider the Heavy Metals
We can't let these appear
in any cooking kettles.

It was interesting to observe the behaviors and attitudes of Task Force members as the sessions evolved. As hinted above, all members joined the Task Force as specialists in their own fields armed with a certain set of preconceptions. For example, public health officials and specialists entered the process with knowledge of the dangers of heavy metals and pathogens contained in sewage sludge. However, they had little knowledge of soil chemistry, soil microbiology, and plant metabolism. The seminar topic sequence began with characteristics of sludge and economic issues, progressed through soil chemistry, soil microbiology, plant nutrition, animal nutrition, etc., and ended with human health aspects. This logical sequence of subjects moving through the food chain served the purpose of laying the base for rational discussion. Many of the concerns of public health oriented individuals were allayed by new knowledge of the other dimensions of the situation.

When the seminar series was completed, writing assignments were made according to the knowledge areas of Task Force members and with appropriate deadlines. As each draft section was received, it was distributed to all Task Force members for review with deadlines for comments. The sections were then returned to authors for revision. When revisions were completed, a summary and recommendations section was prepared and similarly distributed. When all written comments were received, a complete draft copy was assembled and distributed and a final Task Force meeting was organized. The final meeting consisted of discussing suggested revisions and editorial aspects. All members were polled concerning their support of the contents and recommendations. The vote was unanimously in favor of submission to the Commission.

The Task Force Report was submitted to the Commission for review, and, when the report from the other Task Force was received, a Commission meeting was held. At that meeting the reports were accepted and agency heads were instructed to begin drafting appropriate regulations.

The latter phase was greatly facilitated by the fact that the Task Force included representation from each of the government agencies involved. It was obvious that this fact had enhanced official knowledge of the content of the report and an appreciation of the scientific basis for the recommendations.

Insights

In evaluating the experience described above, the paradigm could be rather broad-ranging. We could discuss and contrast the arguments for basic and applied research. This discussion could also be *extended* to include the role of Extension and the proper balance of research and Extension; of the returns to information creation and information diffusion. However, the present discussion of our insights is confined to the realm of applied research. That is, research which the investigators hope will be beneficially used by decision-makers at either the private or public level.

Our premise for this section is that the experience described was a success. Individuals crossed disciplinary lines, state agency lines were breached, and scientific knowledge infiltrated at all levels. Learning and broadening of perspectives occurred. Documents were prepared which offered background information **and** recommendations (guidelines) to state decision-making units. Currently, the Commissioners of the various state departments (e.g., Food and Agriculture; Environmental Quality Engineering) are preparing regulations based on these guidelines for submission to the Secretary of the Executive Office of Environmental Affairs.

The question is, "Why was this adventure successful, when the results of other projects the authors have undertaken — topics and methodologies which were far more stimulating and exciting from a *professional* standpoint — lay collecting dust on a shelf or remain hidden in the bowels of a professional journal?"

To exaggerate a bit, there are two ways researchers decide what to work on. One is by introspection — they refer to their own judgments about the important questions needing answers and decide among these according to their own abilities and priorities. The other is by accepting the opinion of the ultimate user of the research (local, state, or federal agency; industry; or other) about what is really needed. Of course, most of us use the first mechanism, because, . . ., "well, . . . what the hell do *they* really know, anyway? They're too close to the problem, not as objective as we, and they don't have a Ph.D. in economics." So, we define the problem, we solve the problem, and we tell decision-makers what decision to make (if they read the right journals, of course).

The second approach was taken in the experience described above. The agency people perceived a problem and asked the university to help. While the initial conception was not well-formulated (there was an unawareness of the literature and of the important developments in other states and regions, a poorly defined structure for viewing the problem, political motivations, etc.), the university agreed to assist. Could it be that the current implementation of the results of this research is largely due to the fact that it was initially *their* idea? We think yes.

Next, let us focus on the seminar series which was an integral part of the Task Force investigation process. We seldom saw the Commissioners at these meetings — Commissioners are busy people. To us this appeared to be a rather ominous and depressing development at the time. We felt that if the Commissioners of the regulatory agencies were uninterested, our efforts would ultimately have been wasted. Nevertheless, we pushed on with the seminar series populated by staff members of these agencies. However, as events have transpired we see that two positive and important things happened. First, the staff people attending these seminars learned a great deal from other agency people and from university scientists. Thus, if new regulations and approaches to the topic in question were adopted, there would be an informed cadre of workers to interpret and apply them. Secondly, the enthusiasm[2] and expanded competence of workers is transferable to Commissioners — Commissioners really do listen to their staffs. We observed over the life of the experience a transformation of attitudes toward the topic in several highly-placed officials from a position of near intransigence to strong advocacy.

Thus, we believe the probability of ultimate adoption of research findings is a positive function of: (i) the initiation (even if vaguely conceived) coming from someone in a decision or policy making place, (ii) the education of those who will implement the results, and, related to both, (iii) the selling of the concepts to administrators by the newly educated staff personnel.

A further benefit from the approach is the education of university scientists. In our experience, most scientists learned a substantial amount from scientists of other disciplines as well as from the agency people. In the latter context, we learned about institutional constraints, and political and agency decision processes. This affords a clearer understanding of which variables are really policy instruments and therefore are controllable, and which are simply constraints. This improved enlightenment should lead to more relevant future research on our parts.

Our main lesson from this experience is that where it is possible to do applied research in response to a felt need by the user, there may be a high payoff from working with that user rather than independently (and emerging from the ivory tower two years later to submit a written publication). We are not suggesting, of course, that all applied research can or should be done in this way. We are not suggesting, either, that researchers follow the users around and agree to work on a problem as strictly defined by the user. In the process described earlier, the initial conception of the problem was altered substantially by the university scientists during the process of education. The important thing for implementation chances is that the *initial* conceptualization was *theirs*. Because of the process of communication we have described, such esoteric-sounding concepts as vector optimization and multiple criteria decision making may well become fact in public decisions in Massachusetts, and the notion of *opportunity cost* is understood by non-economists at the agency and policy levels.

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[2]Individuals who acquire new information on some topic tend to be enthusiastic. Co-authorship of reports doesn't hurt either!