



ORSSA Presidential Address

Gordon Erens, 1989

One of the dubious privileges of serving as president for two years is that you have to deliver two presidential addresses. Apparently this did not occur to anyone at the AGM last year when the term of the presidency was extended to two years — or else the decision might well have gone the other way!

On the other hand, presidential addresses being what they are, I guess that there is a 75% chance that those of you who were there nodded off anyway, and that the thoughts of the rest were elsewhere at that time. So why not just dig out last year's address and read it again? Problem solved — I read my address, you nod off to sleep or sit there day dreaming. That gets the formalities out of the way and we can get on with the conference. Mission accomplished!

I must admit I was sorely tempted but then, unfortunately, I discovered that last year's address subsequently appeared in our newsletter. Even so the odds on anyone actually having read it are pretty small. But, remembering Murphy, I suspect that here in front of me is someone, sitting there gloating with a copy in his hand, just waiting to catch me out. So in order to avoid this pitfall I had to go back to that address and check on what I said then.

My theme last year was “Promoting South African OR,” and what I in fact did was to assess our role in this respect — to take stock of our activities. My conclusion was that generally our house was in good order, but that with regard to the promotion of our image in the international community there was work to be done, and I suggested a number of avenues which could be followed towards this end. Some of these have been accomplished — we are for example now sending our newsletter to the secretariats of all member societies of the international body, IFORS. Others are underway — our 21st celebration conference with the theme “OR for Conservation, Development and Planning,” is scheduled to be held in the Kruger National Park during August next year, and has been advertised in the September addition of OR/MS Today. In addition we have sent announcements to all persons on the executives of all member societies of IFORS, as well as to many persons overseas with whom we have had contact in the past — such as previous keynote speakers.

Enough said of last year's address — but what of today? Inevitably when one contemplates what you were doing a year ago then very quickly you come to thinking about the changes that have taken place in South Africa since then. Who among us could have predicted the political changes that were to occur ahead and, more relevantly, the state of anticipation of political change which prevails today? Further, again inevitably, what role do we have to play in this process of change? Which brought me to the theme of this address: “Operations Research and South Africa Today.” With your permission, Mr Chairman, I would like to put forward a few personal points of view in this respect.

It is evident that in South Africa very many difficult and hard decisions will have to be taken, by all parties, in the months and years to come. Now we in OR, among other things, pride ourselves

on our ‘decision-making support’ role. In fact, the phrase ‘to aid decision-makers’ is part and parcel of the standard descriptive definitions of operations research / management science (or whatever other name you choose). One might expect then that, by definition, we should be involved in the process of decision-making that lies ahead. Yet, unfortunately, we have not to my knowledge been involved much in aiding this sort of decision-making in the past and it is not a foregone conclusion that we will be called upon on the future.

The questions which immediately spring to mind are thus:

Firstly, should we indeed be involved?

Secondly, why are we not generally called upon to help with this ‘political decision-making process?’ (Of course not all decisions are political. In fact most are probably socio-economic, but within the context of our times the label is, I believe, appropriate).

And, thirdly, to what extent does our OR training equip us for this sort of decision-making?

The answer to the first question depends largely on each individual’s personal beliefs and vision. My view is that we are confronted by one of the greatest challenges ever to be put to decision-makers anywhere at any time in human history. This might sound overly dramatic, but if you reflect for a moment on the complexities of the first world / third world interface compounded by considerations of ethnicity and religion, I believe that you will regard this emphasis as valid. In essence we are confronted by a problem which, in spite of a cacophony of international protestations to the contrary, has never been satisfactorily resolved. It would be, I believe, a great pity and a greater mistake if we, who claim to be in the business of ‘aiding decision-making’ do not play our part in meeting this challenge.

Secondly, as to the reasons why we are not more often called-upon, I refer to a talk by my colleague Peter Saleminck which he gave to the Johannesburg chapter a year ago (and which is reproduced in the OR Newsletter of January 1989). In it he argued that by virtue of the strong emphasis on the scientific method and objectivity in our training there is a dearth of entrepreneurship among OR practitioners. In other words we are too much inclined to stand back and wait for things to come our way. We are going to have to be far more proactive and go for it. Fortunately, in this respect, developments are on our side. With the government move to privatization more and more, projects are being put out to tender. Already the CSIR and HSRC are well aware of this and are competing feverishly, and there is also much work that is going to so-called management consultants. Are we often not better trained to undertake such projects? Anyway, it is a free market! A further drawback of our training which Peter pointed out is the overemphasis on being just an aid to decision-making. To paraphrase an old saying “You pays your money and you picks your alternative,” we our clients. The point is that if we it want to be involved we are going to have make a greater commitment to the decisions we recommend — we cannot just stand to one side with scientific disinterest.

To answer the third and most important question, as to how well equipped we are for the challenge, we must take another look at decision-making in general. Before I do that, however, let me again say that many of the decisions that have to be taken are of a socio-economic nature and pertain to the planning of specific development projects. These require more or less classic OR studies and we are well qualified to undertake them. In fact, most of the projects I referred to above, which are put out on tender, fall in this category. These include projects for provision of infrastructure, agricultural programmes, manpower development, *etc.* I am pleased to note that a number of our members are already active on some of these less prominent, but nevertheless very necessary, basic development programmes, and we look forward to hearing from them at future OR conferences. But the big question which remains is whether we have a role to play in

the political negotiation process which has to take place at all levels. My immediate response is, yes, we do have a role to play, since the degree to which acceptable decisions will be taken will, among other things, also be determined by the methodology employed to reach them and we have, I contend, some pretty good methods in our toolbox. What other things do we need, or alternatively what can we learn from other disciplines?

Quite a number of academic disciplines have devoted themselves to various aspects of decision-making. These include Philosophy, Economics, Sociology, Psychology and of course our own discipline. Pre-eminent among these are perhaps the group decision techniques of Psychology on the one hand, and the model-based techniques of OR/MS, on the other hand. Psychology offers both some understanding of the patterns and nature of people's decision behaviour, at different levels from the individual to the social organization, as well as instruments for measuring such facets as decision-making and conflict management styles. In addition, it has developed techniques to boost creativity and encourage consensus in the decision-making process. By contrast our techniques generally impose structure and objectivity. For this purpose I have in mind such techniques as Tom Saaty's AHP or some of the simple, but elegant, MCDM approaches which can be easily implemented on a PC, as demonstrated to us at last year's conference by Theo Stewart and Stan Zionts. But any model which can be used to rapidly consider trade-offs between different options will be acceptable for the negotiation process. In other words, in this context the model will largely be used as a facilitating agent.

I am aware, as some of you no doubt are, that these observations are not new and that, for example, Raiffa has written a book on "The Art and Science of Negotiation," and that recent developments in the field of GDSS and specifically NSS are often directed towards this end. Indeed there are even a number of books, each prescribing a specific 'canned' group decision-making process, although these are generally aimed at the business environment. Also, in our country (and abroad) there are quite a few 'facilitators,' from various disciplines, who are already operating.

My point is, however, that I believe that if some of us in Operations Research were to collaborate with experts from some of the other disciplines which also support decision-making, such as with Psychologists or Sociologists, then we could together make a more than useful contribution to progress in this country. It is just possible that, in the true spirit of the origins of Operations Research which arose through the collaboration of experts from a number of disciplines in a time of great need, we might help to facilitate some few of the many important decisions that lie ahead for all of us.