

EPILOGUE

With the applications of NUSAP in our latter chapters we have shown how an apparently simple notational scheme can be used as a framework for sophisticated reasoning about uncertainty. In skilled hands NUSAP can be effectively applied wherever uncertainty is an issue. Once there is an identification of the elements of the uncertainty problem (including the actors along with cognitive and pragmatic aspects) an appropriate form of NUSAP can be devised. In policy-related research the cognitive uncertainties, frequently severe and now politicized as well, can be translated through NUSAP into evaluation of quality of policy inputs.

The effectiveness of NUSAP depends on its coherence; this is provided by a particular philosophical understanding and historical perspective. Based on these, we identify with, and participate in, the new shared awareness of our time. This concerns the destructive impact of our inherited high-technology civilization on the natural environment; and we understand this as the leading contradiction for humanity in our time. The complexity of the issues arising from that contradiction are forcing a new conception of knowledge, involving a recognition of its dialectical character. We can no longer sustain the traditional oppositions, of knowing-that and knowing-how, of formal and informal knowledge, of facts and values and, most basically, of knowledge and ignorance. It depends on our common awareness and skills, whether these complementary pairs are synthesized as creative contradictions leading to new understanding; or whether they remain stagnant and destructive oppositions.

The possibility of the diffusion of the elements of this philosophical conception, so necessary for our survival, represents the positive side of that leading contradiction. For the high-technology system not only provides opportunities for literate culture for growing sections of the population; it also needs a broadly diffused high level of literacy for its effective operation. Hence politics changes its form; the old oppositions between a rational and sophisticated elite minority and an ignorant, oppressed majority, are being transformed. Ideals of quality of life that transcend the never-ending accumulation of material objects are now politically effective. The new politics of "participation" requires a broad sharing of knowledge; and therefore the skills and power.

Numbers, however, are still esoteric knowledge, the property of a small set of initiates who control their magic power on behalf of their masters. This magic has continued to dominate policy decisions and debates. Unlike literacy, numeracy is still not effectively taught. This failure reflects the continued dominance of an obsolete philosophy of mathematics and of knowledge. But just as the operation of a high-technology society requires a broadly diffused literacy, so the struggle to resolve its contradictions requires

a broadly diffused numeracy. Only when there is effective quality control of science for policy, through the management of uncertainties, will we be able to cope intelligently with the crises we face. The demystification of the mathematics of uncertainty is therefore a central part of the programme for the democratization of scientific expertise. This is our contribution.