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PUBLIC PARTICIPATION IN TECHNOLOGY ASSESSMENT
WITH PARTICULAR REFERENCE TO PUBLIC INQUIRIES

Hugh Saddler

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CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES

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The object of this paper is to demonstrate, by example, that contributions from the public can be of great value in evaluating proposals for large scale technical developments. I believe that inputs from the public can significantly increase the amount of relevant information available to decision makers and the range of policy options considered. As a result, the wisdom of decisions eventually taken can be and actually has been materially increased.

Most of the examples are drawn from two major public inquiries with which I have been involved; one in Australia, the other in Britain. The more recent of these was the Ranger Uranium Environmental Inquiry (Fox Inquiry), for which I worked as the Research Officer for a period of some eighteen months between 1975 and 1977. The other inquiry was that conducted by the Commission on the Third London Airport (Roskill Commission), which reached its culminating (public inquiry) phase in the first half of 1970. In this instance I was employed by a firm of consultants, which had been engaged to prepare evidence and cross-examination material on behalf of one of the principle parties to the Inquiry. Hence I was looking at the Inquiry from the other side of the fence, as it were.

After saying something about each of these Inquiries and the contribution of the public to their deliberations, I shall discuss the usefulness of the public inquiry model of public participation and some important general characteristics of such inquiries. I then briefly examine a few other methods of public participation and finally say something about the obstacles to greater public participation in large scale technology assessment exercises.

This paper is not a comprehensive academic study of methods of public participation or of one particular method, public inquiries. However, I believe that the arguments put forward, although they depend heavily on examples drawn from only two inquiries, do have general relevance to any public inquiry that is assessing large scale technical issues of national significance. Many of the comments do not and are not meant to apply to other sorts of public inquires, such as planning inquiries of purely local relevance.

The Ranger Inquiry

The Ranger Uranium Environmental Inquiry was established in July 1975 under the Environmental Protection (Impact of Proposals) Act 1974. That Act defines the word "environment" to include "all aspects of the surroundings of man, whether affecting him as an individual or in his social groupings". This is obviously a very broad definition, and the terms of reference given the Commission of Inquiry were equally broad, requiring it to inquire

"in respect of all the environmental aspects of:

(a) the formulation of proposals;

(b) the carrying out of works and other projects;

(c) the negotiation, operation and enforcement of agreements and arrangements;

(d) the making of, or the participation in the making of, decisions and recommendations; and

(e) the incurring of expenditure,

by, or on behalf of the Australian Government and the Australian Atomic Energy Commission and other authorities of Australia for

and in relation to the development by the Australian Atomic Energy Commission in association with Ranger Uranium Mines Pty Ltd of uranium deposits in the Northern Territory of Australia". This wording, incidentally, follows exactly the wording of the Act.

The breadth of the terms of reference, together with their liberal though firm interpretation by the Commission were of considerable significance. As is well known, the Inquiry examined an extremely broad range of issues raised by the question of uranium mining and export. Very little evidence indeed was ruled to be irrelevant, though witnesses were firmly encouraged not to repeat points that had been made by earlier witnesses. (As an aside, many members of the public who thought of giving evidence seemed to believe that the Inquiry was some sort of opinion poll and that the Commissioners would be swayed simply by the number of times a particular argument was advanced, regardless of the merits or demerits of the argument itself. Needless to say, such a belief was mistaken.) In my opinion, the willingness of the Commissioners to hear and seriously consider evidence on such a wide range of questions has been a major reason for the considerable respect with which its two reports seem to have been received. I return later to this question of public acceptance. It is also the fact that the Inquiry examined the broad, generic issues which make it of such relevance to a consideration of technology assessment. Indeed, the ground covered by the Inquiry can be divided into two distinct sections. One section, mainly dealt with in the Commission's Second Report, is concerned with environmental questions, narrowly defined. The other section covered, and dealt with in the First Report, addresses the generic issues common to any proposal to mine and

export uranium from Australia. As such it constitutes an assessment of the implications of becoming involved in that technology. My remaining comments will be mostly confined to the way in which the Commission approached this part of its task.

The Commission was required, under the Act, to base its findings and recommendations on evidence taken on oath or affirmation and on documents submitted as exhibits. Witnesses prepared a written statement and were cross-examined on the contents of their statement by counsel for the Commission, by the Commissioners and by a team of expert advisers to the Commission. Witnesses were also allowed to cross-examine other witnesses. Witnesses generally appeared as individuals, not as representatives of organisations. However, part way through the Inquiry the Commission granted nine organisations, including proponents of mining, environmental and aboriginal organisations the status of principle parties and invited them to take part in a special concluding summary session. Of course, many witnesses were employed, on either a permanent or consultancy basis, by one of these parties. On some occasions witnesses from companies were represented by barristers. However, the Commission encouraged witnesses to speak for themselves and for the most part barristers only appeared when evidence was being taken on such matters as the interpretation of legislation, i.e. matters where they had some expertise.

Public participation made a major contribution to what I have called the technology assessment aspect of the Commission's deliberations. In the first instance, it is rather doubtful if

such a highly qualified group of Commissioners with such broad terms of reference would have been appointed at all had it not been for the rising tide of public concern at the time (in 1975) about just these aspects of uranium mining. However, the major public involvement at the Inquiry was the evidence received from witnesses. There were nearly 300 witnesses altogether. Some appeared in the normal course of their employment, either as permanent staff of such organisations as the Atomic Energy Commission (AAEC) or as consultants to mining companies and other organisations, and others were asked by the Commission to give evidence. However most witnesses appeared on their own initiative, as interested private citizens.

Most, but certainly not all of this group, who can be regarded as "the public", were opposed to uranium mining. Some of them were experts in particular scientific or technical disciplines and gave evidence within their expertise. Others gave technical evidence relating to matters on which they had no formal qualifications or experience; a number of such witnesses were able to participate in the give and take of cross examination on fully equal terms with the formally qualified experts. On some topics, evidence given by supposedly expert witnesses was manifestly inferior to that from members of the public. That people without technical expertise are able to understand technical issues in sufficient depth to present informative, technically accurate evidence should not be surprising. After all, just such an assumption underlies the appointment as Commissioners of three people with expertise in only some of the many fields covered in evidence.

It is noteworthy that of the two proponents, the Ranger Company gave no evidence at all on these wide issues and the AAEC gave evidence only on some of the matters. For example, the important question of the relative economics of nuclear as against other methods of electricity generation was examined in any depth only by members of the public; the AAEC stated towards the end of the Inquiry that they had no economists on their staff at that time. Given the inadequacy of the evidence, the Commission staff was obliged to do a considerable amount of investigation on this topic.

Independent investigation, by means of both cross-examination and documentary research, is a very important aspect of the public inquiry model of public participation. In the case of the Ranger Inquiry, the Commission and its staff were all from outside the bureaucratic/business decision making network that had been involved in the issue up to that time. A public inquiry is quite different from an internal inquiry in this respect, and in an important functional sense the Commissioners and their staff can be regarded as members of the public, albeit of a rather special kind. The Environment Protection (Impact of Proposals) Act gives a public inquiry under the Act independence from the government of the day in the conduct of its day to day hearings and research. However, a Commission appointed under the Act requires funds from the government to meet the expenses of staff salaries, accomodation, and so on.

Whether or to what extent a Commission appointed under this Act or under the Royal Commissions Act could continue to carry out its functions if deprived of funds by the government is an

interesting and subtle legal problem. It is also a matter of some practical significance. Early in 1976 the government, by cutting off funds, prematurely terminated a number of important Commissions of Inquiry, such as the Royal Commission on Petroleum. Press reports in January of that year claimed that the Prime Minister wished to end the Ranger Inquiry in a similar manner, but in the event the Inquiry was allowed to run its full course without interruption to its funding.

One more example will serve to illustrate the importance of independent investigation. A very senior nuclear physicist with experience in the design of nuclear weapons told the Commission that reactor grade plutonium is not "suitable" bomb material, and that any bomb assembly made from it would "fizzle, before it produced a large explosion". Other evidence to the Commission indicated that a properly designed bomb made from reactor grade plutonium would give a significant but unpredictable explosive yield in the kiloton range. The difference between these two views is of great importance in determining conclusions and recommendations with respect to the problems of nuclear weapons proliferation and clandestine diversion of fissionable material. In the absence of a public inquiry it is likely that the first view would have prevailed with the policy-makers. The Commission, however, concluded that the second view was correct; subsequently this view was confirmed in public by a statement from the U.S. Nuclear Regulatory Commission and the U.S. Energy Research and Development Administration.

I hope that these examples have demonstrated the value, so far

as the Ranger Inquiry was concerned, of input from the public and of the public inquiry procedure itself. The Commissioners themselves stated, in the First Report: "We agree strongly with the view ... that, given a sufficient understanding of the science and technology involved, the final decisions should rest with the ordinary man and not be regarded as the preserve of any group of scientists or experts, however distinguished". Speaking of members of the public who gave evidence opposed to the development of uranium mining, they said: "We would wish to make it quite plain that before us the opposition has come from a wide cross-section of the general community, and we would not be prepared to conclude that their motives and methods are any less worthy or proper, or intelligently conceived, than, in general, are those of the supporters of nuclear development."[1]

The Third London Airport Inquiry

The Commission on the Third London Airport was established in 1968 following a wide and bitter public opposition to the proposal that such an airport should be built at Stansted in Essex. The proposal had originated from an Interdepartmental Committee set up by the Conservative government in 1961, but had been pursued with vigour through a local planning inquiry and a White Paper by the Labour government after it took office in 1964. In 1969 much public hostility and distrust focussed, in the words of the Commission, on "the secrecy attaching to the decisions which had been taken, the rigid limitation of the terms of reference of the Chelmsford inquiry and the lack of public participation".[2] There was also a widespread belief that many issues of great relevance to the decision had been glossed-over or completely ignored. It was therefore decided that

the Commission should take the unusual course of appointing a large and expert Research Team to carry out a comprehensive cost-benefit analysis of alternative sites for the airport. The Research Team's study formed the largest single piece of evidence before the Commission at its final public inquiry in 1970. Prior to this inquiry, local inquiries had been held at each of four short-listed sites, in order that the views of local objectors should be heard.

Although other aspects of the Commission's procedures, notably the appointment of a research team and the study it produced, are of great interest to students of public administration, I am only concerned in this paper with the final public inquiry. This Inquiry differed markedly from the Ranger Uranium Inquiry in several important respects. Interested parties, such as local government authorities, airlines and local amenity organisations, had formal status at the Inquiry and most witnesses appeared on behalf of a party. Many of the parties, including all the larger organisations, were represented by barristers who led their witnesses and cross-examined other witnesses. These procedures were derived from the practice of public hearings held under the Town and Country Planning Act 1947, a piece of legislation which has become one of the most enduring monuments of the Attlee Labour Government. As a consequence of that Act, there has developed in Britain a specialised planning bar, whose members confine themselves largely to appearing at planning inquiries.

Another important feature of the Commission's whole task was the narrowness of the terms of reference. The Commission was to investigate the timing of the need and the location for a third

airport "to serve the London region". These terms of reference were approved by both the Labour government and the Conservative opposition in 1968. No reference was made to national airports planning, although it is impossible to examine the operation of a new major airport near London, without considering the impact of traffic through airports at, for example, Birmingham, Manchester and Leeds. Nor was the question raised as to whether a third London airport was needed at all. Occasional efforts by witnesses to stray over towards this ground were quickly detected and ruled irrelevant by the Chairman of the Commission. Throughout the Inquiry the Chairman appeared almost obsessed by the urgency of completing the work of the Commission; witnesses were repeatedly exhorted to speed up their presentations and the same message appears in black and white in the final Report.

Subsequent developments cast an ironic light on this quest for speed and the concomitant narrowness of issues covered. The site recommended by the Commission proved unacceptable to influential public opinion and to a large phalanx of back-bench supporters of the Conservative government which had come to power during the closing days of the Public Inquiry. As a result, the government opted for Foulness, one of the sites rejected by the Commission. This also met with considerable public opposition. Simultaneously, such developments as the introduction of wide-bodied passenger aircraft and the lower growth rate of the air transport industry postponed considerably the onset of excessive congestion at London's existing airports. When Labour returned to power in 1974 it decided, in the prevailing climate of austerity, to postpone indefinitely the construction of a third London airport.

There was relatively less input by the general public to the Third London Airport Inquiry than there was to the Ranger Inquiry, partly because public evidence had already been taken at the local hearings previously referred to. The principal manifestations of public opinion were the various resistance associations, formed in the neighbourhood of each of the four short-listed sites to oppose the choice of their particular area. Some of these had sufficient funds to engage professional consultants to present part of their case, but others were entirely dependent on the voluntary efforts of non-experts.

The case of the Foulness site is particularly worthy of note. This site, located on tidal mudflats on the north side of the Thames estuary, was strongly favoured by the other resistance associations, by the various local authorities (which in conformity with the major responsibility for land use planning presented a great deal of sophisticated evidence), and by several large commercial consortia. Although the Airports Authority and other aviation interests opposed the choice of Foulness, they were little concerned with the intrinsic environmental values of the locality or of the interests of people living there. The presentation of the case for protecting the environment at Foulness and against building the airport there fell almost entirely to a single individual, who took six months unpaid leave from his employment as a customs inspector. He presented his evidence and cross-examined other witnesses with skill and confidence, though inevitably he could deal with only a few of the issues and was somewhat dependent on other (friendly) parties for advice and information. Without his efforts, the case for preserving the environment of Foulness would

scarcely have been heard.

Another major public inquiry was held last year in Britain. It was called the Windscale Inquiry and was concerned with the proposal to build a large new nuclear fuel reprocessing plant at Windscale, in north west England. There are already a large number of nuclear fuel cycle installations at Windscale, such as reactors of various kinds, a reprocessing plant and special tanks for the storage of high level waste. My knowledge of the Inquiry is derived only from reading its report, reading accounts of its proceedings in the British weekly press, and general familiarity with the issues involved. The battle lines of the participants were similar to those at the Ranger Inquiry (a large, government owned nuclear energy organisation (British Nuclear Fuels Limited) against a diverse array of opponents). However in its procedures (extensive use of barristers, etc), and in the narrowness of its approach, the Windscale Inquiry had more in common with the Third London Airport Inquiry. The Report is also notable for the way it seems simply to ignore large tracts of the evidence and whole lines of argument adduced by some of the opponents of the proposal. Nevertheless, extensive press coverage of the Inquiry's proceedings did ensure publicity for a broad range of alternative views about nuclear power and general energy policy in Britain. The Report recommends that the proposal be allowed, almost unaltered, to proceed.

Reasons for Failure of Public Inquiries

I believe that the examples demonstrate the value of public participation in the assessment of major projects. However, it must be acknowledged that the results of many public inquiries have

been far from successful. Findings have created storms of public protest and been rejected by governments, as happened to the Third London Airport Inquiry. Other inquiries have seen their recommendations ignored and forgotten. In such cases, public participation has failed to improve the quality of decision making. It is important that the reasons for these failures are understood. In this section I argue that the reasons are to be found in the procedures adopted by the Inquiries and the circumstances surrounding their operation. Public participation itself is not to blame.

I hardly needs pointing out that all the three public inquiries I have mentioned fall within the British Royal Commission model of quasi-judicial tribunal, which is used also in such countries as Canada and New Zealand. The procedures adopted by such inquiries differ from the procedures of a court of law in some important respects. Their conduct is less formal - commissioners and legal counsel wear ordinary clothes, not wig and gown, and exchanges between commissioners and witnesses tend to be at a level of formal good manners rather than institutionalised deference. One very important distinction is that the rules of evidence do not apply. Hearsay evidence is permitted, and witnesses are not required to be experts on a particular matter in order to give evidence of opinion. The commissioners at all times have discretion as to what evidence they are and are not prepared to hear. The acceptability to the public of the inquiry's procedures and of its subsequent findings and recommendations, is greatly influenced by how the commissioners exercise this discretion on evidence of opinion. I shall return to this point later.

The benefits of such a relaxed and flexible approach to the hearing of evidence are, in my experience, greatly offset if barristers are encouraged to play a large part in the proceedings. All too often at the Third London Airport Inquiry, the use of barristers as antagonists by proxy proved to be a singularly inefficient way of conducting complicated technical arguments. It was intensely frustrating to hear a whole line of cross-examination abandoned because a witness had given a reply that had not been anticipated in the briefing notes, or to have flashy point scoring substituted for deep understanding on a complicated issue. Of course, there were exceptions. Some barristers demonstrated, by their thorough grasp of a broad range of technical issues, that such questions are by no means beyond the comprehension of industrious and intelligent members of the public.

The use of barristers induces an adversarial atmosphere at proceedings. Since the object of public inquiries is frequently to develop modified proposals which stress the areas of agreement between parties, the synthetic confrontations of barristers are seldom helpful. Their presence also contributes to the general intimidating atmosphere, which the use of less formal legal proceedings is intended to dispel. For an individual member of the public, it is daunting enough to be faced by an array of technical experts. To withstand in addition the scorn and sarcasm which are the stock in trade of many barristers is likely to be a challenge too great for all but the most self-assured individual. Public participation is thereby discouraged.

These procedural aspects were undoubtedly a major reason why the Third London Airport Commission heard so little evidence from the general public. But it is necessary to look further to find why the findings of the Commission provoked even greater displays of public discontent than the preceding decade of muddled and secretive bureaucratic planning had done. In doing so, I assume that the broad objective of governments in deciding to hold a public inquiry is to facilitate the reaching of decisions that are both fair and seen to be fair. In other words, the aim is to reach decisions on controversial technical issues in a manner that is least disruptive of social harmony and of the orderly processes of government. It would be difficult to argue that the Third London Airport Inquiry succeeded in this part of its task.

I believe that the main reasons for the failure of the Third London Airport Commission were the narrow terms of reference and the Commission's even narrower interpretation of those terms. Members of the public were prevented from raising issues, such as the expected growth in air traffic; had they been considered the quality of the Commission's recommendations would have been greatly improved. Furthermore, by failing to hear such arguments, the Commission failed to achieve any appearance of fairness in the decision making procedure. But there was also an even wider set of questions which might have been heard, but were not.

Questioning of the ideas and values which underlie modern capitalist society, notably the belief in technical progress, has become widespread in the last ten or so years. Indeed the emergence of the concept of technology assessment is partly a response to

such questioning, and the political problems it has created. In each of the three cases I have been discussing, the most articulate, comprehensive and, at least in the long term, politically influential opposition to the proposals being examined came from members of the public who questioned the social values underlying the proposals. A public inquiry, if it is to make broadly acceptable a decision which, in essence, rejects these values and espouses the values of technical progress, must at least be prepared to listen to the proponents of other values. The Commission on the Third London Airport failed to do so.

Interestingly, a passionately worded dissenting opinion that, at least in its rhetorical style, owed much to these rejected values was included in the final Report of the Commission. It was written by one of the Commissioners, Professor Colin Buchanan, who, according to the other Commissioners, did not make his very extensive disagreement known to them until three months after the public inquiry ended.[3] It was certainly not apparent to people attending the inquiry. Professor Buchanan advocated the choice of Foulness, rather than the site preferred by the other Commissioners. As I have pointed out, the government subsequently also chose Foulness and there can be no doubt that Professor Buchanan's statement was extremely influential. To the uncommitted reader, his passionate rhetoric and professions of inability to understand the complexities of cost/benefit analysis, sound just a little disingenuous.

The Windscale Inquiry was prepared to hear such arguments, but in its final Report these views were either ignored or dismissed in words that can only be described as emotional and even gratuitously

insulting. One of the technical assessors assisting the Commission has recently admitted that evidence received towards the end of the proceedings had been treated "with some testiness"[4]. That such a response was probably inevitable, given the intense strain of conducting the Inquiry, indicates the need to re-examine the public inquiry procedures. It does not alter the fact that the Windscale Inquiry appears also to have failed in its political task of obtaining social harmony in decision making.

By contrast, the reports of the Ranger Inquiry seem to have been widely accepted in Australia and also abroad as fair and reasonable documents. Because of the wide public acceptance, the government has been at pains to stress the fact that it has accepted and is implementing most of the recommendations in the report.[5] While this claim is itself open to some question, the relevant point is that the government felt that it was politically advantageous to make the claim so forcefully. There are, furthermore, good grounds for believing that, in the absence of the Commission's reports, the government would have reached rather different decisions about how to develop the Alligator Rivers uranium - decisions which attached less importance to mitigating the environmental and social impacts of uranium mining.

There are several reasons why the reports of the Ranger Inquiry appear to have achieved much wider public acceptance than those of the two British inquiries. Some observers have described the Ranger reports as having a bet each way. The Commissioners did not reach unequivocal conclusions on every issue raised by a comprehensive examination of the nuclear fuel cycle, not all of which have a direct

bearing on decisions to be made about Australian uranium. In such instances, the direction of the various arguments put forward are indicated and the reader is left to reach his or her own conclusions. While definite findings were made on most of the significant issues, on a few very important ones, notably about policy to minimise the risk of nuclear weapons proliferation, an explicit decision was taken to make no recommendations. The reasoning was that "Complete evaluation of the extent of the risk and assessment of what course should be followed to reduce it involve matters of national security and international relations which are beyond the ambit of the Inquiry".[6] Some other recommendations are insufficiently precise to lead unequivocally to one particular policy, for example the recommendations on sequential development of mines.[7]

The Commissioners have been variously described either as deeply cunning in the ways of politics or as lacking in moral determination. Most such criticisms have been made by people who were hoping for an unequivocal yes or no to uranium mining. But the Commission considered that its task encompassed not only policy or technology assessment, for which such unequivocal recommendations might have been appropriate, but also public education. Support for this interpretation can be found in the passage previously quoted and from the concluding recommendations of the First Report; "that there be ample time for public consideration of this Report".[8]

The public education function forms a distinct and important part of the task which a public inquiry can carry out. A public issue so broad, so complex, and so beset with strident claims as the nuclear debate is in great need of clarification and directing. The

public inquiry procedure allowed many strident claims, as well as much calm good sense, to be heard, examined and evaluated. Ideally, the evaluation should set out as fairly as possible, the main arguments from all points of view and should then also set out the issues and options for decision makers and for the public. The public is thereby enabled to make a judgement on the quality of the decision which the government subsequently makes on its behalf. This, it seems to me, is what technology assessment with public involvement is all about. By and large, the Ranger Inquiry commissioners succeeded in this task.

Two further points are worth making. Firstly, the procedures of a public inquiry may themselves be an important method of public education. Public hearings on controversial issues are often deemed to be newsworthy events and are therefore given wide press coverage. If the reporting is accurate and fair to all points of view, public knowledge of and interest in the issues may be greatly increased. The hearings of the Windscale Inquiry received very wide press coverage and it is probable that the public education that resulted willbe the most important product of the Inquiry.

Secondly, an independent public inquiry, provided that its terms of reference are sufficiently wide and it is adequately provided with support staff, provides the opportunity for a disinterested group to examine major decisions in a holistic manner. Examples have already been given of how public inquiries may bring forward important and relevant issues that have previously been overlooked. The overall evaluation also makes it possible to develop an integrated decision

scheme, which makes conscious trade-offs in the important areas of conflict. None of these valuable results can be achieved by in-house policy development along normal bureaucratic channels.

Values and Evaluation

Notwithstanding the emphasis I have placed on the public education task, it must be stressed that the Ranger Inquiry commissioners did make definite findings and recommendations in relation to many of the matters raised in evidence. How were the findings reached? Conventional thinking about public inquiries tends to take a strongly positivist view of the decision making procedure, in which the evidence is seen as an array of "objective facts". In part such positivism is derived from views about the criminal courts, where the task of the court seem to consist mainly of decisions about such concrete facts as whether a person was at a particular place at a certain time. Where evidence is in conflict, value judgements may have to be made about the relative veracity of witnesses. The much broader philosophical position, which considers the evidence to be "scientific" meaning value-free, is also influential. The problem of the relationship between values and scientific knowledge is far too large to be tackled in the present paper. But it is interesting to examine some of the exchanges which took place during the Ranger Inquiry hearings.

The commissioners heard a number of witnesses who argued that the question of whether or not to export uranium was, in essence, a question of the values which should prevail in Australian society. It was suggested that, if Australia and the world are to have a long term harmonious future, society must turn away from its present

dominant values, which they saw as selfish, acquisitive and exploitative. The role of technology in modern industrial society was seen as the central element in its overall character, and the changes which they were advocating would require a fundamental change in the nature and function of technology. Nuclear power, it was argued, is a paradigm of modern technology, and its renunciation would be an essential element of a change toward environmentally harmonious life styles.

It is interesting to see how the commissioners responded to these arguments. At one point the Presiding Commissioners asked a witness: "Now would you think that we should bring in our report based on existing values and institutions or that we should bring in our recommendations based on our own views?"[9] A few minutes later he answered his own question: "You see I'm afraid that when you address us about the desirability of having a philosophical debate that is both outside our terms of inquiry and would be futile and indeed it would be more than that because you may find a tendency for a government, any government to appoint as Commissioners to an Inquiry such as this people whose philosophical views are known. That would be disastrous to this sort of Inquiry, wouldn't it? In other words what plainly this Commission is required to do, as indeed are all Commissions, I think virtually without exception, is to act on their understanding of accepted standards and values ... Having said all that, wouldn't you agree that it would be hopeless and wrong, and perhaps lead to the entire perversion of this sort of Inquiry, were we to act on some philosophy of our own which was not that generally understood in the community?"[10] In its First Report

the Commission stated: "While the conclusions we arrive at must of necessity be our own, we have, where appropriate, endeavoured to apply the standards and values generally accepted in our society, as we understand them. To do otherwise would be to express purely personal opinions, and this would be both wrong and unhelpful".[11]

These passages show a clear recognition of both the political function of the Inquiry and also the value-laden nature of some of the most important findings and recommendations. I believe that the success of the Ranger Inquiry is in large measure attributable to the clear-sighted awareness of the essential place of values in the task of the Commission. However, the assumption that there exists a set of "values and standards generally accepted in our society" raises other questions. Some critics would argue that no such set exists; others would hold that there are such "values and standards", which, however belong not to society as a whole but to a dominant group or groups within society, possessing the power to impose their views on the rest. Such fundamentalist critics would also query the assumption, that a group of individuals, appointed as Commissioners, could completely put aside their own values and substitute for them the prevailing values of society or of "the ordinary man". Unfortunately, such questions take us well beyond the limited scope of the present paper, and must therefore be left unanswered here.

From the evidence I have been discussing about the operation of public inquiries into major projects, I draw the conclusion that, while holding a public inquiry will not guarantee getting a good decision, the risk of getting a very bad decision is greatly reduced. Putting it another way, the outcome of a public inquiry will never

be a worse decision than might have been made had an inquiry not been held. Some examples of very bad decisions that have been made without the benefit of a public inquiry may be illuminating. Examples from Australia include the decision, subsequently reversed, to build a second Sydney airport at Galston, and the decision to build the Ord River Dam and to use the water to grow cotton. In the USA, the Atomic Energy Commission provided some notorious examples, of which one of the best known was the choice of a site at Lyons, Kansas for the disposal of high level radioactive waste - a site which was later shown, more or less by chance, to be completely unsuitable.

For governments deciding whether to hold a public inquiry, the cost of the inquiry often seems to be a major consideration. It is then a question of the value of improved decision making. While the costs of large inquiries may seem very considerable, they look much less formidable when compared with the capital costs of the projects concerned. The very extensive effort mounted by the Third London Airport Commission, for example, cost about one third of one per cent of the estimated discounted capital cost of building the airport (one fifth of one per cent of the undiscounted cost). The cost of the Ranger Inquiry was about one half a per cent of the cost of the Ranger project, but of course a much smaller proportion of the estimated net present worth of the project, which is expected to be very profitable. Costs to witnesses might increase these proportions by a factor of two, or even more. Nevertheless, the cost of achieving a better decision still seems very reasonable.

Other Ways of Achieving Public Participation

I now wish to turn away from public inquiries, in order to consider briefly three other methods of achieving a measure of public participation in technology assessment.

The referendum is frequently proposed as a means of settling the sort of issues we are considering here. Many Australians, including for a time, the ACTU, have advocated a referendum on the uranium question. In Britain, referenda were suggested on both the Third London Airport and the Channel Tunnel proposals. All these suggestions have been rejected by the relevant governments. Weighty political and constitutional arguments can be advanced in opposition to the use of referenda in such cases under the British and Australian political systems, and the arguments may have been responsible for the decisions not to hold referenda. Certainly, referenda on the nuclear power issue have been held in other places, such as various States of the USA and Cantons of Switzerland, where the referendum is an important part of the normal political process.

However, there are also other reasons for rejecting referenda as a means of involving the public in decisions about large and complex technological projects. Firstly, there is the unequal incidence of advantage and disadvantage flowing from many projects. For example, a major new airport would impose great losses, of money or amenity or both, on people living on or near the site. A very much larger number of voters, the airport users, would make small gains of convenience, comfort and so on when they used the airport. If self-interest is assumed to be the prime determinant

of how each individual would vote in a referendum, the airport users would massively out-vote the airport neighbours. The result would, on most commonly accepted notions of justice, be highly unjust. A second argument applies to any referendum campaign held under the sort of election funding laws that exist in Australia. On any issue where the two sides have greatly unequal access to funds, the result would be likely to favour the side that was able to spend lavishly on election advertising. This criticism has frequently been made of the 1976 California referendum on nuclear power.

Two further arguments against referenda have been advanced by Self. He points out that the result would be unsatisfactory or unlikely to resolve conflict, because people have different reasons for choosing particular policies; the polarisation between what he terms economic (self-regarding) motivation and principled or moral (ideal-regarding) motivation is seen as especially important. He also observes that great public ignorance about details and consequences of proposals is inevitable, and that therefore the majority probably would not vote. (Under Australian compulsory voting they would presumably cast a donkey vote.) [12]

Public inquires are, in my opinion, superior to referenda, but an even better alternative may be an expanded system of parliamentary committee hearings. In the Australian and British parliamentary committee system the final reports of the committees are commonly regarded as the most important product of a committee's deliberations. While some reports of some committees in both parliaments have been excellent, others have been very poor, demonstrating a most superficial understanding of the issues examined.

However, the example of US Congressional Committee hearings shows how the transcripts of proceedings, including submitted documents, can themselves, provided they are widely available, offer a means for members of the public to make their views known. The thoroughness of the examination which some committees of Congress give to complicated technical issues and the wide range of testimony they hear are most impressive. Of course US Senators and Congressmen and -women have far greater resources at their command, in terms of both personal staff and the staff of Congress, than do their Australian counterparts. Provided this deficiency were remedied, committees of the Australian parliament should be able to make the same sort of independent assessment as a public inquiry, and to do so on a much larger number of questions. In common with many other citizens, I have become concerned in recent years at the relative weakening of the legislative branch and the corresponding increase in power of the executive. The power to decide whether or not to hold a public inquiry is an aspect of executive power which could be partly transferred to the legislature, were the existing parliamentary committees to be expanded.

Another procedure for public participation that has never, so far as I am aware, been seriously attempted in Australia is the systematically organised public debate. Examples are to be found in the debates on policy toward nuclear energy which have been organised in some European countries, such as Austria and Denmark.

The Danish government made the first moves to stimulate public discussion on energy policy in June 1974, when, in response to mounting

public criticism of its nuclear power proposals, it established a committee to disseminate information on energy matters. The committee consisted mainly of educationists; it contained neither representatives of the nuclear power industry and the government's nuclear agency, nor representatives of the citizen opposition movement. It was given a budget of about $400,000 and used this to publish six attractive and informative paperback books on energy policy, which were sold at just over one dollar each. It seems to be generally agreed that the material in these books gave fair treatment to all points of view in the energy debate. Only one of these six dealt directly with nuclear energy; other issues covered included economics, environmental problems, resource politics and renewable energy sources. The committee also produced booklets and pamphlets, bibliographies, lists of films and so on.[13] A vigorous and well-informed public debate on Danish energy policy was set in motion as a result of these activities and it is still proceeding.

Obstacles to Greater Public Participation in Australia

Unfortunately, the success of an organised public debate requires a fair-minded approach to political arguments that is not at present conspicuous in Australian political life and never has been in the past. This is obviously a major obstacle to the implementation of what may be one of the best methods of achieving wider public participation in technology assessment. There are many other obstacles which apply to almost any form of public participation.

One obstacle is cost. I have already mentioned that many

citizen groups who appear at public inquiries do so in their own time with considerable financial sacrifice for the individuals involved. At each of the three public inquiries I have been discussing, such witnesses were required to appear on equal terms not only with witnesses supported by the resources of large companies, but also with those supported by or appearing for statutory authorities like the Australian Atomic Energy Commission or the British Airports Authority, backed by the full resources of government. All this is obvious enough.

It may not be so obvious that the situation in Australia is particularly grave, because of the absence of private foundations willing or able to support independent studies and assist groups wishing to challenge the fiat of big government. In the USA, for example, the Ford Foundation has funded important and influential studies of overall energy policy and nuclear policy. In the UK, the Unilever Foundation supports a body called the Council for Science and Scoiety, which has performed several independent studies of particular technologies, while the Rowntree Trust provides crucial support for several of the organisations which took a major part at the Windscale Inquiry. The reasons for the state of affairs in Australia may be attributed to the colonial structure of the Australian economy, to the parochial outlook of Australian capitalists, or to many other factors. The consequence, for those who believe in the value of public participation, is serious. It places a much greater responsibility on government not only to establish appropriate procedures, but also to provide the funds that will ensure that the public is able to play its full part in the procedures, once established. The Whitlam government

took some initiatives in this direction, such as the establishment of government funded Environment Centres. But a much greater committment is needed.

Another problem is that of access to government information. Lack of such access is a major obstacle to public participation in Australia and is, if anything, even worse in Britain. The USA, with its comprehensive freedom of information legislation provides a striking contrast. The reluctance of government departments to provide information to the public is well known, and often the ease and apparent efficiency of the administrative task may be increased by witholding information from the public. But it should be obvious that members of the public cannot be expected to contribute constructively to decision making if they know neither the details of government proposals, nor the factual results of studies that have been performed to provide support for such proposals. I would, of course, exclude from such strictures the witholding of information on the grounds of national security, but I am not certain that claims of security interest may not on occasions be spurious. It is worth noting that the Commonwealth government has recently passed a Freedom of Information Act which seems to be so restrictive that it achieves almost the opposite of its purported functions, and severely curtails the public's right to information.

Not only the public has problems of access to government information. The Ranger Inquiry Commissioners observed "We note that a few of the government officials who appeared before us showed reluctance in communicating matters of importance to the Commission. It seemed to us that the objectives and workings of

the Environment Protection (Impact of Proposals) Act may not be clearly understood in some government departments". [14]

One final obstacle to greater public involvement in certain kinds of technological decisions should be noted. A decision such as whether or not or under what conditions to export uranium is fairly discrete and explicit. But governments make other decisions in an incremental manner, by the successive accretion of small decisions. It appears that the decision of the British government to become involved in the development of Concorde was of this incremental kind. For some years the project was relatively small scale and drew little attention. But by the time it became apparent that Concorde was a very large project that raised major economic, environmental problems, such resources had been invested that it would have been difficult indeed to turn back.

A central proposition, implicit in the argument of this paper, is that Australian (and British) governments have, up till now, only agreed to hold public inquiries or arrange other forms of public participation when the political pressure to do so becomes too great to expediently resist. If this is correct, it follows that it will be even more difficult to achieve adequate public involvement in incremental decisions, since few people will know that the decisions are being made, or, if they do know, be aware of the potential significance. On the other hand, the decision making structure of government has great difficulty in handling issues like Concorde. Public participation and wide-ranging assessment of implications are therefore even more important than in other cases.

I have ended this paper with a somewhat daunting, but certainly incomplete list of obstacles to greater public participation in technology assessment. I hope it will serve to indicate some of the areas where government initiatives are required. The catalogue of obstacles should in no way detract from the main conclusion of this paper: that increased public participation in technology assessment will lead to improved decisions on technological issues. I have argued that case in a purely empirical way, by adducing a number of examples. But I have also pointed out that conclusions of this kind reflect the values of the person reaching those conclusions. I hold certain values about the relationship of individuals to society, which heavily colour my attitude toward public participation in technology assessment. I shall therefore end by quoting with approval from an article by the present Minister for Energy in the British government, written when he was in opposition in 1973. Mr Benn said: "The control of technology is therefore now a central political question that cannot be separated from the old and continuing debate about the distribution of wealth and power in every country in the world. Technology assessments may involve complicated calculations, but the final decisions must not be handed over to the new breed of self-appointed specialists living a monastic existence in the think tanks of the world. They must be seen as a part of man's unending struggle to control and shape his own future. If we cannot do that, technology assessment could even become a new mask behind which new men of power plan new ways of imposing their will on a new generation of new serfs."[15]

REFERENCES

1 Australia. Ranger Uranium Environmental Inquiry (1976), First Report, Canberra, Australian Government Publishing Service, p.6.

2 United Kingdom. Commission on the Third London Airport (1971), Report, London, Her Majesty's Stationery Office, p.10.

3 *ibid*, p.140.

4 New Scientist, 78, p.758 (15 June 1978).

5 Australia (1977). Uranium - Australia's Decision, Canberra, Commonwealth Government Printer.

6 Australia. Ranger Uranium Environmental Inquiry, (1976), *op.cit.*p.185.

7 Australia. Ranger Uranium Environmental Inquiry (1977) Second Report, Canberra, Australian Government Publishing Service, pp.178, 216, 292, 328, 329.

8 Australia. Ranger Uranium Environmental Inquiry (1976) *op.cit.*p.186.

9 Australia. Ranger Uranium Environmental Inquiry (1976), Transcript of Proceedings, 13 April 1976, p.7367.

10 *ibid*, p.7372.

11 Australia. Ranger Uranium Environmental Inquiry (1976), First Report, Canberra, Australian Government Publishing Service, p.175.

12 Self, Peter (1975), Econocrats and the Policy Process, London and Basingstoke, Macmillan.

13 F.G. Muller, pers. comm.

14 Australia. Ranger Uranium Environmental Inquiry (1976), First Report, Canberra, Australian Government Publishing Service, p.6.

15 Benn, Tony (1973), Technology Assessment and Political Power, New Scientist, 56, 487-90 (24 May 1973).