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The contexts of environmental decision-making

by Brian Martin

In 1975 I became involved in an environmental inquiry concerning a proposal to lay three petroleum pipelines through metropolitan Sydney. The inquiry was revealing in a number of ways. The terms of reference were such as to make the pipelines proposal appear in a favourable light, especially from an environmental point of view. More importantly, the terms of reference encouraged opponents of the proposal (mainly local citizens and environmentalists) to argue mainly in terms of narrowly conceived environmental issues. Broad facets of the issue, such as questions of energy policy or citizen participation, were excluded from the discussion.

Underneath all the rhetoric, it seemed that the oil companies making the proposal were mainly motivated by the need to ensure supplies and profits, and only used environmental arguments because they were useful in obtaining the necessary authorisation for the pipelines. The opponents of the pipelines seemed to be mainly motivated by a desire to protect local amenity (on the residents' part) and a complex of reasons including a desire to change the current mode of decision-making (on the environmentalists' part). In each case, the narrow environmental arguments used were chosen mainly due to convenience in attaining these ends.

All this stimulated me to look at the pipelines issue in terms of different levels or contexts from which it might be evaluated: contexts such as local environmental impact, alternative methods for transporting

petroleum, rationalisation of the distribution network, energy policy, and equity. Looking at the proposal from several different contexts enables one to attain a better understanding of the issue in several ways.

First, while there are arguments for (and against) the proposal within each context, the arguments for (or against) the proposal in some contexts are strong ones and in other contexts are weaker ones. So by the choice of a particular context from which to evaluate the issue, the issue is more or less prejudged (as happened at the environmental inquiry).

Second, the arguments of the many types of proponents and opponents of the proposal make more sense after one has looked at the matter from a number of contexts. Often a given party to the debate may present what seems to be an unlikely collection of arguments: obvious points may be omitted, or obscure points raised. But these arguments, when put in the perspective of a particular context or contexts (usually directly related to the party's underlying social, political, and economic assumptions), usually become much more coherent and sensible (in their own terms).

Third, by looking at the types of arguments selected and not selected by the different parties, one can get an improved understanding of the underlying motivations for their behaviour. This can be especially useful to activists in analysing their motives: it is easy to get caught up arguing the 'right' case for the 'wrong' reasons, and vice versa.

In the following pages I describe in outline form some of the contexts from which the pipelines issue may be evaluated, and then make some observations on the implications of this analysis for the course of the environmental inquiry and for the behaviour of the participants. The aim is not to describe the issue in any detail (the ramifications of even this 'simple' planning decision are enormous), but to present a framework for studying decision-making involving environmental matters. (It is only fair to say that in the environmental inquiry I adopted arguments and contexts all of which tended to oppose the pipelines. So the following account is undoubtedly slanted towards my preferred perspectives.)

The pipelines proposal

Three oil companies in January 1975 applied for licences to lay petroleum pipelines along a particular route between the regions of Botany Bay and Rosehill, Sydney (see map). Shell applied for a licence to lay an 8-inch diameter pipeline to carry jet fuel from the Shell refinery at Clyde to Sydney Airport at Mascot. Mobil and Caltex jointly applied to lay a 14-inch pipeline to carry refined petroleum products from their refinery at Kurnell to a proposed new distribution terminal in the Rosehill area.

And Shell applied to lay, in about five years time, a 20-inch pipeline to carry crude oil from a proposed large tanker receiving terminal in Botany Bay to their refinery at Clyde. The N.S.W. State Pollution Control Commission conducted an environmental investigation into the oil companies' proposal, and on the basis of this investigation issued recommendations to the state government concerning the granting of licences.

Context 1: local environmental impact

One of the narrowest contexts from which the pipelines issue may be viewed centres around the impact that the pipelines would have on the environment in the immediate vicinity of the pipelines themselves. The proposed pipeline route passes mainly through parkland and to a lesser extent under the verges of suburban streets. The construction and operation of the pipelines would have a number of undesirable effects on those people living or passing near this route: noise of construction, inconvenience, disruption of recreational areas, visual disfigurement due to warning notices, and so forth. Furthermore, there is the possibility of a structural defect in a pipeline or of an accident (for example due to digging without knowledge of the pipeline underneath) leading to leakage and consequent pollution, in particular of the Cook's River. Another possible local impact is the deterioration of the banks of the Cook's River due to being weakened by the digging for the laying of the pipelines.

The magnitude of these impacts was a matter of considerable dispute between the oil companies and the opponents of the pipelines. But although the companies can argue that the local environmental impact would be small, it must be admitted that there would be *some* impact. So if a decision were made solely within this context, it would inevitably be against the pipelines.

Context 2: environmental impact of 'feasible' alternatives

There are several different ways in which petroleum can be transported between the regions of Botany Bay and Clyde/Rosehill. The transport mode for refined products at the time of the inquiry was road tanker. A second mode of course is pipelines, as proposed by the oil companies. The companies claimed that if the pipelines were not allowed, the movements of crude oil, refined products, and jet fuel would otherwise be by road tanker.

Opponents of the pipelines suggested two further alternatives: rail and water. A rail goods line conveniently runs almost the entire route

between the main dispensing and receiving areas; and water transport by small tanker is also fairly straightforward — crude oil is transported to the Clyde refinery in this way.

Within the context of the environmental impact of feasible alternatives, one evaluates all alternatives for 'feasibility', and then compares the remaining alternatives according to environmental impact. The question of the 'feasibility' of a particular alternative raises a whole new set of contexts; here I present only a few of the arguments.

Water transport has the advantage of avoiding pipeline or road transport problems, and requires no major new facilities. It has the disadvantage of being uneconomic (according to the companies), and requiring trans-shipment from the planned supertanker terminal in Botany Bay. In the inquiry the water transport alternative was declared 'infeasible' due to apparent state government policy which discouraged commercial activities (and consequent pollution) in Sydney Harbour.

Rail transport also avoids pipeline and road transport problems, and requires relatively few new facilities. On the negative side, it increases congestion, for example at level crossings, and (although this was unstated at the inquiry) saddles the companies with more militant unions and direct government control over transport pricing. In the inquiry the rail alternative was found 'infeasible' due to lack of space for terminal facilities.

Having eliminated water and rail, the comparison is between road and pipeline. Each of these provides environmental problems. The environmental impact of the pipelines was covered in context 1.¹ Road tankers have impacts of increased road congestion, use of large amounts of fuel and resources (petrol and road tanker construction), increased handling, noise and exhausts, and higher labour costs. The extent of some of these impacts may be debated. For example, it was argued by some opponents of the pipelines that any reduction in road tanker traffic would immediately be filled by other traffic, so that no net reduction in noise or air pollution would occur.

Although comparing the many different and diverse environmental impacts of road and pipeline transport is not easy, a strong case can be made that pipelines are considerably superior — both in regular operation and in the likelihood of accidents. So if a decision were made solely within this context, it would be likely to favour the pipelines.

Context 3: economics

One way to decide for or against a planning proposal is in terms of its economic benefits and costs ('economic' in the narrow sense: not internalising social and environmental benefits and costs). In the case of

the pipelines, it seems reasonable to say that the oil companies would be the best judges of the economics of petroleum transportation, and therefore that the pipelines option was the most economically advantageous to them. Of course economic evaluations are severely circumscribed by political, legal, social, and other constraints, such as the possibility of bad publicity or loss of political influence. The environmental inquiry itself constituted such a constraint. But if the decision were to be made primarily on the basis of economic advantage of the companies concerned, it would almost certainly be in favour of the pipelines.

Context 4: rationalisation of operations

The operations of the oil companies — production, distribution, and marketing of petroleum products — are decided upon by the companies themselves, within constraints set by statutory authorities and market processes. The companies make decisions about where to build refineries, what products to produce and how to distribute these products. Such decisions no doubt make sense in terms of company objectives, but they are not necessarily the most efficient from the point of view of the community as a whole.² Therefore it is useful to postulate a reorganisation of production, distribution, and marketing patterns which would avoid the necessity for at least some of the pipelines.

The jet fuel pipeline is to take jet fuel from Shell's Clyde refinery to Sydney Airport at Mascot. A glance at the map shows that it would be more convenient for production of jet fuel to be undertaken at the refinery at Kurnell, which is fairly close to Mascot (the distance is much less than from Clyde to Mascot, and does not involve public parks; in any case, a pipeline between Kurnell and Mascot already exists). With this rearrangement of production operations, the need for the jet fuel pipeline would be removed.

The refined products pipeline is from the Kurnell refinery to a terminal in the Rosehill area. This pipeline would replace some of Caltex/Mobil's road tanker operations for transport of refined products from the Kurnell refinery to Sydney's western suburbs. Once again, a glance at the map shows that an alternative distribution pattern would be feasible. Petroleum products for the western and northern suburbs could be supplied primarily by the Clyde refinery, which is much closer to this marketing region, while the eastern and southern areas of Sydney could be supplied primarily by the Kurnell refinery. This reorganisation of distribution patterns would greatly reduce road tanker operations. Furthermore, it would obviate the need for a terminal near Rosehill for

Caltex/Mobil. In this way the need for the refined products pipeline would be removed.

Although the companies oppose possibilities such as those above (more precisely, such possibilities never enter the realm of discussion), it is noteworthy that there are extensive exchange arrangements involving refinery output on a national level.³

If the context of decision-making about the pipelines had been mainly that of rationalisation of existing operations, it is likely that permission for the jet fuel and refined products pipelines would have been refused, and a decision about the crude oil pipeline deferred until a time closer to when it was proposed to be laid.

Context 5: other planning decisions

The pipelines proposal is closely related to several other planned industrial developments. The proposal itself does not mention these developments except as a justification for the pipelines. That is, the companies assume that certain developments will take place which will make the pipelines a more rational planning choice.

However, it may also be that the pipelines also will help justify the other developments. If these other developments have certain disadvantages — such as harmful environmental impact — the existence of the pipelines may make the difference in accepting or rejecting them. Therefore it can be argued that the pipelines should not be considered in isolation from other related developments.

One such development is the proposed distribution depot in the Rosehill area for petroleum products from Caltex/Mobil's refined products pipeline. The attitude of Caltex/Mobil was that the products pipeline should be judged on its merits (economic worth and environmental impact) and the depot should be judged separately on its merits. What happened was that the pipeline was judged first. Once the pipeline had been approved, the inquiry into the depot was held. But the approved pipeline then provides a justification for the depot. The argument of the opponents of the pipeline and depot was that they should be judged together in one hearing.

Other developments closely related to the pipelines proposal are the expansion of Shell's Clyde refinery and the transformation of Botany Bay into a major port, in particular to receive supertankers loaded with crude oil. The companies considered that these issues should be judged separately from the pipelines, whereas the opponents of the pipelines argued that the developments should be considered in their relation to the pipelines proposal.

The Rosehill distribution depot, the Clyde refinery expansion, and the Botany Bay development all provide justifications for the pipelines: without these developments, the need for the pipelines would be much reduced. If one accepts without question these other developments (allows corporate and government bodies to make the decisions in terms of their interests), a strong rationale for the pipelines is created. If one questions these developments (for example on grounds of equity or environmental impact) then this rationale is of reduced importance.

Context 6: need for energy and fuel

The major reason presented by the oil companies for the need for the proposed pipelines was a projected 3-fold increase in the demand for petroleum products in Sydney's western suburbs in 20 years time. One level at which the pipelines proposal may be evaluated is that of whether such a need is likely to exist, or should be encouraged to exist.

Although until recently it has been conventional to assume that energy use will keep expanding indefinitely, it is becoming realised⁴ that the coming shortage of liquid fuels (and at the very least their extremely high price) calls for major changes in energy policy. In the short term, ways of decreasing the dependence on liquid fuels include decreasing the size and increasing the efficiency of present automobiles, and increasing the scope and attractiveness of public transport systems. (An incentive for such measures could be to increase the price of petroleum products to their long term marginal cost, which would mean prices vastly higher than today's.) In the long term, it is possible to design communities to reduce the need for high energy transport, for example by siting home, work, and amenities more conveniently, permitting and encouraging walking and bicycling, and decentralising. In these ways, remaining oil and gas reserves could be used for vital uses (such as producing petrochemicals), and made more available to the poor countries.

If the pipelines proposal were considered mainly within the context of the need for energy, it might well be decided to delay any decision until a firm and far-sighted national energy policy were formulated — and then to re-evaluate the issue in the context of that policy.

Context 7: equity

It is possible to judge a planning proposal at least partly in terms of whether and how much it promotes equity in the affected community. From the point of view of equity, then, it is worth considering the distribution of some of the costs and benefits of the pipelines.

The main benefits from the pipelines would be economic, and would accrue principally to oil companies and contracting companies. The main

costs would be environmental, and would fall on those few directly affected by pipeline construction. The more diffuse environmental benefits of fewer operations in Sydney Harbour would preferentially benefit well-to-do groups, and the corresponding increased impact in southern suburbs of Sydney would mainly disadvantage working class groups.

If a decision about the pipelines proposal were to be made on the basis of its effect on equity, it would almost certainly be against the proposal (assuming the object is to increase equity).

Context 8: community participation in planning

The presence or absence of community participation is normally seen as a feature of the way in which planning and decision-making occur. In contrast to this, decisions could be made (in principle) on the basis of whether or not the community had been involved. For example, it might be considered so important that the community be involved in planning that a decision against a planning proposal be made automatically if the community had not been involved. It is in this sense that I refer to community participation as a frame of reference for decision-making.

Citizens can be involved in decision-making at a number of levels: planning, choosing between alternative plans, or in objecting to proposals (in order of decreasing quality and impact of the participation). At each of these levels, there are arguments for and against citizen participation.⁵ Arguments for participation include improving equity in the effects of plans, preventing the inside influence of vested interests, strengthening the democratic political process, and reducing alienation and apathy. Arguments against participation centre around inefficiency: the difficulty of involving citizens, the possibility of arriving at the wrong decision, and the possibility of lack of consensus.

If the pipelines issue were to be judged in the framework of community participation, it might be argued for example that planning of the need for petroleum products and the optimum method for transporting them could have involved the affected community to a great extent. This could have had beneficial results on several levels, from the avoidance of inequitable plans to the promotion of democratic concern and satisfying activities in the community. On the other hand, it could be argued that planning for Sydney's needs for petroleum products would have been hindered to the detriment of the community.

My own feeling is that the case for community participation in planning and decision-making concerning the need for petroleum products and their mode of transport is much stronger than it might be in

other cases. The actual involvement in protesting against the pipelines was quite extensive, which shows that community interest could have been achieved and maintained. Also, the time between the initial suggestion of pipelines and the actual laying of them has extended to quite a few years, more than sufficient time for effective involvement by all concerned citizens.

Comments on contexts

There are a number of other possible contexts besides the eight which I have described here. Some of the other important ones are: effects on employment; the use of public parks for private purposes; setting of a precedent in the commercial use of the Cook's River valley; and self-sufficiency in the energy supplies.

The very idea of a context is an idealisation. Issues cannot be argued or judged solely within a single context even if one wished to. For example, the consideration of the 'other' planning proposal of the Botany Bay port for supertankers must take into account (explicitly or implicitly) questions of environmental impact and equity. Contexts are not platforms on which arguments rest or from which people pontificate, but conceptual tools which may be useful in analysing a complex conjunction of disputants, arguments, and motives.

By choosing a particular context from which to argue, a strong preference for a particular outcome may be built into the debate. But it is certainly no better to draw up a list of contexts and then decide on the basis of which outcome is favoured from the most contexts. Values enter the debate both in the choice of particular contexts from which to draw arguments, and in the importance one attaches to particular arguments within each context. Rather than providing an escape from values, looking at contexts provides a way for helping to bring them into the open.

The environmental inquiry

The actual environmental investigation into the pipelines proposal illustrates perfectly the way in which a planning decision may be prejudged by specification of the context in which the investigation takes place. The bulk of the pipelines inquiry took place within what I have called contexts 1 and 2 above.⁶ To give an idea of the level of the discussion, take a sample agenda sub-item (based on submissions to the inquiry):

7e-2 The companies consider that trees of height up to four metres can be readily replaced. It is claimed by others that clayey soils in the upper reaches of the valley

prohibit replacement of four-metre trees, and also prevent rapid growth of smaller trees.

This is the summary of the discussion on this point:

There was dispute as to whether four-metre high trees could be re-established. The companies said that they intended to replace trees of that size with equivalent specimens where necessary. It would be acceptable to the companies as a condition of approval.

The stated terms of reference of the inquiry were somewhat broader than contexts 1 and 2 and the agenda items above, but the chairman of the inquiry conscientiously narrowed the terms of reference. The need for increased transport of petroleum was assumed: the chairman declared that there would be no debate on the magnitude of need for petroleum products, because there was a need (sic). The current distribution patterns and planning decisions were considered company or government matters and unquestionable: the chairman stated that there would be no debate on the expansion of the Clyde refinery, because crude had to be gotten there (sic). Questions of equity and community participation also were not allowed in the discussion: indeed, the chairman considered that the environmental investigation itself constituted community participation in planning and decision making.

Even within contexts 1 and 2 there are numerous arguments and counter-arguments concerning environmental impacts and the feasibility of alternative transport methods. In the actual inquiry a number of subtle and crude devices were used to eliminate or downgrade alternatives to the pipelines. But my object here has not been to outline the details of the inquiry, but to illustrate the narrowness of the context in which it was conducted.

Making sense of arguments

The information and arguments used by a person in discussing or debating an issue are inevitably selective: only some 'facts' are stated, only some aspects of the issue are covered, and only some arguments are used. Often it is difficult to understand the criteria a person uses to select information and arguments. It is my experience that by looking at an issue from the point of view of various contexts, one can get an idea of the level (or levels) at which a person is operating.

Furthermore, by matching arguments to contexts, one can get an idea of the values underlying the argument of any particular advocate or commentator. So if a person argues against the pipelines solely on the basis of local environmental impact, one might use as a working hypothesis the idea that the person was primarily concerned with stopping a local intrusion and less concerned about equity or energy policy.

Of course in inferring values it would be foolish not to use what one knows about the parties to the dispute besides their arguments. For example, it seems reasonable to assume that oil companies are concerned first and foremost with profits and growth rather than protecting the environment. So if they use environmental arguments to back the pipelines proposal, it would pay to investigate further. In the pipelines case one would find that the oil companies have made no attempt to lobby for more favourable rail rates so as to replace the environmentally more damaging road tankers, and *do* lobby to allow extra-large road tankers (to replace rail transport of petroleum products to country areas). This indicates that for the oil companies the context of economics is likely to be the fundamental one, and that the comparison of environmental impacts of road tankers and pipelines is an argument of convenience.

Inferring a person's values by matching arguments to contexts is not always straightforward. In many cases an advocate of a particular decision will utilise many of the available arguments, whatever context they may come from. Even so, in many cases arguments from some of the possible contexts are never mentioned, probably because it never occurred to the person to question the conventional assumptions. For this reason arguments at the levels of energy policy, equity, and community participation are rarely encountered.⁷

A lesson for activists?

It is depressing that we live in a society so structured that people and organisations in so many cases find it natural to act only in terms of perceived self-interest. In the debate on the pipelines proposal this was manifested in the way in which a narrow frame of reference was used most of the time. The oil companies primarily concentrated on the safety and low environmental impact of the pipelines; when it was necessary to justify the pipelines, they mentioned economic benefits and the technical or environmental disadvantages of alternative routes.

The opponents of the pipelines for the most part also ended up arguing in the narrowest context, the local environmental impact of the pipelines. Almost all the newspaper articles concerned with the issue were on this level. Submissions to the inquiry demonstrated the strong self-interestedness and consequent narrow focus both of residents and government departments. In one humorous case a group of residents on a street tried to get the pipelines route moved to go under a golf course on the other side of the street. The golf club similarly tried to get the route moved as close to the street as possible. The oil companies, caught in the middle, ended up switching the route several times. In each case

opposition to the pipelines was based only on the route directly affecting personal or organisational interests. As another example, a number of local councils vehemently opposed the pipelines at first, but later muted or withdrew their criticism. This apparently resulted from the knowledge of the royalties they were to receive from the pipelines.

What then is the position of environmental activists? In the pipelines case and in many other cases environmentalists seem to get caught up in arguing about environmental impacts of an extremely narrow kind. To be fair, this is not all their own doing. In the pipelines case there were strong pressures on environmentalists to use a narrow context: the only type of opposition to the pipelines acceptable to the environmental inquiry was based on local environmental impact and alternative transport methods.

But my feeling is that many environmentalists are just as concerned about wider issues of rationalisation of operations, equity, and community participation as about narrow environmental impacts. The solution to narrowly defined problems is quite often the technological fix — such as new methods for preventing leakage from pipelines — which is prescribed by those who do not wish to alter society in any fundamental way. Environmentalists on the other hand should be ready and able to challenge those features of society that are at the root of many environmental problems: production organised for private profit rather than for satisfying community needs (context 4: rationalisation of operations; context 5: other planning decisions); policies geared toward short-term gains for selected groups rather than long-term benefits to the whole community (context 6: need for energy and fuel); inequitable distribution of wealth (context 7: equity); and inequitable distribution of power (context 8: community participation in planning). Perhaps opposition to many planning proposals, even though seemingly at a narrow level, can be seen as opposition to the system of planning and decision-making that leaves out environmental considerations as well as leaving out the community. At least this is what I hope motivates much of the environmental movement.

As long as a decision to protect the environment also promotes rationalisation of operations or equity, a concentration on narrow environmental issues can be justified at a tactical level. But this is no excuse for neglecting the wider dimensions of environmental issues altogether. It is vitally important for environmental activists to link the current issues with the wider social and political assumptions underlying the debate. Otherwise it is possible that the environment will become only another constraint on decision-making which otherwise serves the same interests in the same manner as before. And without change in the underlying institutions which cause irrationality in resource allocation,

economic inequality and political injustice, environmental as well as other problems and conflicts will continue to be spawned.

In the pipelines case, a better tactic might have been to vocally and resolutely challenge the bland dismissal of the wider issues which occurred at the very beginning of the inquiry — and to walk out if the chairman insisted on narrowing the terms of reference. This suggestion has the benefit of hindsight, of course.

More importantly, it is vital that environmental activists delve into their own motives and objectives, and then decide if their actions are helping to achieve their real aims. It is in this task that the study of contexts may serve as a useful tool.

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Footnotes

- 1 Two other pipeline routes were suggested by the oil companies besides the one along the Cook's River. One was underneath areas next to rail lines: this was vetoed by the N.S.W. Public Transport Commission. The other was underneath areas next to main roads: this was vetoed by the Department of Main Roads.
- 2 The lack of identity between economic benefits to oil companies (short-term profit) and community (long-term welfare) is made by Allen L. Hammond, William D. Metz and Thomas H. Maugh III, **Energy and the future** (Washington, D.C.: American Association for the Advancement of Science, 1973, p. vii), and Robert Engler, **The politics of oil: a study of private power and democratic directions** (New York: Macmillan, 1961). A typical difference concerns the rate at which scarce resources should be exploited.
- 3 P. J. Rimmer, **Petroleum** (Croydon, Victoria: Longman, 1970).
- 4 There are numerous references on the topic: see for example Hammond *et al.*, *op. cit.*, or Amory B. Lovins, **World energy strategies: facts, issues, and options** (New York: Friends of the Earth, 1975).
- 5 Peter Loveday, 'Citizen participation in urban planning', in R. S. Parker and P. N. Troy (eds.), **The politics of urban growth** (Canberra: Australian National University Press, 1972), pp. 129-148. For a trenchant criticism of current planning practices see Robert Goodman, **After the planners** (New York: Simon and Schuster, 1971).
- 6 State Pollution Control Commission, **Metropolitan petroleum pipelines investigation** (Sydney, 1975).
- 7 The following articles are among many from which the context(s) of argumentation may be inferred fairly readily: Michael Sowden, 'Pipelines, pollution and preservation', **Honi Soit**, 10-17 March 1975 (local environmental impact); 'Pipelines test new aldermen', **Campsie News and Lakemba Advance**, 30 October 1974 (local environmental impact); A. J. Rose, 'What can take place of pipeline?' (letter to the editor), **Sydney Morning Herald**, 7 September 1974 (environmental impact of alternatives); John O'Hara, 'Anger over oil plan', **Sydney Morning Herald**, 3 May 1975 (other planning decisions); 'Environment before industry?', **Campsie News and Lakemba Advance**, 25 June 1975 (local environmental impact, need for energy).

