

course of development appears to be moving in the other direction, calling for more skilled management than is available. A shift away from smallholder projects is becoming evident. For example, cattle smallholdings are to be replaced with ranches owned by entire clans, worked by hired labour and large enough to pay the services of an expatriate manager. A flagging smallholder rubber development at Cape Rodney, Central Province, is to be revitalised by the addition of a central estate. The World Bank's Southern Highlands Development scheme also opts for nuclear estates. The Baiyer River alcohol plant will be supplied with intensively farmed cassava. The rice and sugar projects now under consideration not only have no place for smallholders, but are on a very large scale indeed.

The causes of this trend go deeper than economies of scale and the unstable output of smallholders. Officials concede that there has been insufficient effort to make the smallholder self-reliant. Extension officers have arranged for bank loans to farmers and taken most of the decisions to ensure that the loans are repaid. Effectively the smallholder is turned into a labourer on a government-managed farm. On top of this is the difficulty of extension work among a largely illiterate population with a chronic shortage of staff. Yet the government is committing only K300,000 (\$396,000) a year to adult literacy programmes. Moreover, Rural Development Assistants, who comprise the vast majority of agricultural extension staff, are to be phased out altogether. They will eventually be replaced with smaller

numbers of better-trained staff, but an increasing proportion of students graduating from agricultural colleges go into private business for themselves.

Eventually, the educational system will probably iron out the currently erratic course of development at the rural level, if, that is, its western orientation does not promote dissatisfaction with rural life. However, it may be perpetuating the lack of local expertise which recently lead the Prime Minister Mr Michael Somare to try to drum up Australian investment. PNG is not at the mercy of foreign capital. Its laws clearly demarcate the areas in which investment is welcome, and it regulates the form that foreign business activities can take. But critics point out that this can only serve to amplify the gap between the still expanding subsistence population and the wage sector, and further disrupt the former.

In addition to this, the growing indigenous commercial interests, with their increasing political influence at provincial level, are also aiding the push towards a more capital intensive wage sector and away from subsistence and smallholder farmer. A related danger is that provincial governments are threatening to make their own arrangements with foreign companies, but have less ability to ensure favourable terms than the national government.

In accordance with its stated policies, Papua New Guinea is slowly achieving self-reliance as a nation, and redressing the inequalities between its regions. The question is: can it at the same time bring self-reliance and equality to its people? □

Eric Ashby (right) looks at a recent report on public participation in technology decision-making in OECD countries and argues that better public information could reduce disenchantment with representative democracy

THE WINDSCALE enquiry in Britain and the Mackenzie Valley Pipeline enquiry in Canada were highly publicised experiments in participation. They were responses to a demand which has now become insistent, for "a greater degree of public accountability, freer public access to technical information, more timely consultation on policy options, and a more holistic approach to the assessments of impacts", to quote a report on participation from the Science Policy Division of the Organisation for Economic Co-operation and Development.

The report, *Technology on Trial*, by K. Guild Nichols, published in Paris last year, is a clear and useful account of the present state of the art of participation in OECD countries. The important point Nichols makes is that this demand is a symptom of a much deeper social disturbance — a disenchantment with the whole process of representative democracy.

The public elect people to represent their interests and straightway distrust them. Through the mass media self-appointed leaders who claim to represent the public interest can bypass the traditional hierarchy of procedure and appeal direct to the people over the heads of legislators. Nichols quotes Paul Valery: 'all politics is based on the indifference of most of those concerned, without which politics would be impossible'. If Valery was right, we are in for trouble; for concern, as measured by the number of people prepared to vote (for instance) in the referendum on atomic power held in Austria in November 1978, is spreading, and indifference to such great issues can no longer be assumed by those who make decisions.

Governments in pluralistic democracies are embarrassed by this surge of interest; as indeed they need to be, for this desire that the general public should participate in the decisions that affect their lives is undeniable in theory and confoundingly perplexing in practice. There is no such thing as monolithic public opinion. Even groups of people who agree about what is in 'the public interest' may do so for different reasons: one because he genuinely fears a nuclear economy; the other because he doesn't want a power station to spoil his view. The utilitarian calculus — that a social welfare function is the sum of a multitude of individual welfare functions — is a discarded and useless concept. The assumption, accepted for a long time by the man-in-the-street, that major

Depending on foreigners for self-reliance: expatriate manager (right) with cattle smallholders rigged out in clan gear



Participating in planning: the public needs better information



technological problems can be left to experts to solve, is no longer valid. If we want to remain a pluralistic democracy, we have got to invent reliable machinery for public participation.

Nichols' essay describes how information on technological issues is conveyed to, and elicited from, the public; and he describes how policy makers are informed and advised. He draws examples from several countries: Britain, the US, Canada, Scandinavia, Germany, Austria, France. He picks out the difficulties and displays them clearly. How can an unofficial group of citizens get access to the necessary information? Where can they raise the money to dispute a governmental policy? How can state officials, promoting what they earnestly believe is the public interest, be protected from vexatious, and sometimes mischievous, obstruction from groups acting out of self-interest? What are the comparative merits of agencies, legislative hearings, commissions, and the courts, as ways to resolve conflicts of values?

Nichols gives an accurate and objective summary of recent attempts in OECD countries to reconcile the conflicts of fact and value which are inevitable when nations have to make decisions about exploiting the environment. In just over 100 pages he could not be expected to cover the whole range of social experimentation that has been tried. This range has been classified, somewhat tendentiously, by S.R. Arnstein (in *The Journal of the American Institute of Planners*, xxxv, 1969, p.216) in six categories, grouped in pairs: (i) manipulation and (ii) therapy (designed to 'cure' the participants of what the proponents of a scheme deem to be ignorant prejudice); (iii) providing information and (iv) consultation (deemed by some participants to be 'tokenism'); (v) delegated power to participants and (vi)

citizen control (the two categories which Arnstein is prepared to regard as 'partnership'). Categories (i) and (ii) have been rejected by the lobbies which give themselves the duty of scrutinising the impact of technologies on the environment. As machines for public participation they are obsolete. Category (vi) would be regarded, by all but the most fanatical opponent of representative government, as unrealistic. Categories (iii) and (iv) are acceptable to some lobbies, and they could be made more widely acceptable if they were taken more seriously by governments.

For models of intelligent consultation combined with masterly presentation of facts we have to turn to Canada. Two outstanding examples are the reports of Mr Justice Berger on the gas pipeline from Alaska (summarised by Nichols); and the outstanding report from the Ontario Royal Commission on Electric Power Planning (*A Race Against Time: interim report on nuclear power in Ontario*, Toronto, 1978). The explanation of the CANDU fuel cycle in this report is a brilliant example of interpretation to the layman of the issues he must understand before he can play a useful part in any process of participation.

The corporation that generates electricity — the Ontario Hydro — has no statutory requirement to involve the public in its planning processes. Nevertheless, since 1972, the corporation has involved about a hundred people at head office and in its regions, holding public hearings, setting up citizens' committees, and listening to anyone who cared to talk to them.

Whether this has educated the public to understand the issues better is something that cannot be proved; but there is no doubt that the public have educated Ontario Hydro, and the Commission.

This, however, falls short of partnership in decision-making, and there are very few examples of the delegation of some power to the participants, Arnstein's category (v). Only one successful example of that is on record. It is to be found in a report prepared for the Electric Power Research Institute in California (*Proceedings of a Workshop on the Measure of Intangible Environmental Impacts*, EPRI Special Report, Palo Alto, 1976). The San Diego Gas and Electric Company had to site a new power station in southern California. They invited the public to set up a

committee of their own to examine alternative sites, provided them with financial help and expert advice, and left them alone to hold their own public hearings and to make a recommendation, which the Company accepted.

It is unlikely that participation in Britain will go beyond the levels of Arnstein's categories (iii) and (iv) in the foreseeable future; but if bodies like the Central Electricity Generating Board and the National Coal Board bring imagination and genuine enthusiasm to their schemes for providing information and for seeking consultation, the benefits even of limited participation could be considerable. First, it could restore some confidence in the judgement of those who inevitably have to make the final decisions (the process of decision-making is as important for society as is the wisdom of the decision itself). Second, it could encourage a sense of responsibility among the so-called public interest lobbies.

More participation will not necessarily clarify the issues themselves: indeed one of the surprising results of a massive experiment in public education about nuclear power in Sweden, financed from public funds and involving some 80,000 members of the public, was that at the end the number of people who felt unable to decide either for or against nuclear power increased from 63% to 73%. This is not — as some government officials asserted — a sign that the experiment failed; it is, rather, a sign that more people than before are aware of the immense complexity of the problems facing their representatives in government. This could increase public sympathy with decision-makers; and this in turn could help to turn the tide of disenchantment with representative democracy.

Our educational system must bear some of the blame for this disenchantment. In the last thirty years the impact of science on society has gone up by many orders of magnitude; but science at the popular level (for those who are not going to become professionals) is taught in very much the same old way.

We have not paid enough attention to telling people what they need to know about science if they are to perform their civic duties. (Often we tell people too much: Nichols quotes Thurber's little girl: "This book tells me more about elephants than I ever wanted to know".) The American science writer Philip Ritterbush put the challenge this way: '... scientific understanding of the public, rather than public understanding of science, might become the frame for discourse'. □

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