1. The potential for increased agricultural production and more equitable distribution of water to farmers on existing medium and large irrigation systems is probably enormous, not least because production potential has been greatly enhanced by the new agricultural technologies developed in the past ten years. But performance on most irrigation systems is very inefficient and falls far below expectations. It is rare to find economists' cost-benefit calculations justified, planners' expectations fulfilled, or governments' targets achieved. Most projects bring under effective command much less land than was planned. Cropping intensities usually fall far short of projections. Water deliveries to farmers are often unreliable. The supply of water is frequently very inequitable, with those at the head receiving more than their fair share, and those at the tail receiving supplies which are small, uncertain and untimely, if indeed they receive any water at all.

2. Diagnosis tends to be inadequate because of disciplinary blinkers. Engineers are concerned with physical works and water flows, agronomists with crop water requirements, sociologists with organisation and access within communities, and economists with the costs of water. None of the prescriptions which flow from these narrow views - bigger and better works and maintenance for the engineers, more predictable and appropriate water deliveries for the agronomists, methods of conflict resolution for the sociologists and water pricing for the economists - tackle the central questions of how in practice water is and should be controlled and allocated by bureaucratic irrigation organisations. This is a gap in knowledge. Again and again studies suggest that the decisions and actions of engineers, water supervisors, water guards and the like are critical for more productive and more equitable distribution of water; yet almost nothing is known about them.
3. The reasons are not only narrow disciplinary specialisations. Irrigation staff are also probably more difficult to study than, say, an engineering system, the water requirements of a crop, a village community, or the cost of water. Often they are, it seems, subject to strong political pressures, to threats and to inducements. Their roles are intensely political in that (except where water is very abundant) they are involved in allocating scarce economic goods to farmers. If irrigation management is to be improved, it has to be made rational for them to behave in ways which will be very unpopular with some people - especially the often more influential top-enders who tend to get water at the cost of tail-enders. To see how to make such behaviour rational, the work, lives, problems and relationships of irrigation staff have to be understood.

4. This requires research which may be as difficult as it is important. It requires something of the approach of social anthropology applied to a dispersed, probably defensive, and often corrupt bureaucracy. It requires a sympathetic understanding from the inside of what happens at present, which can lead to sound prescriptions for improvement.

5. Since this is a new focus, research methods may have to be innovative. Many questions - where to start (in a village? at the top of the organisation? in the middle?), how to explain the purpose of the research, how to protect and to be trusted to protect informants, how to avoid unduly altering actors' behaviour by the observers' presence, how to find out what really, normally, happens, and above all how to make the leaps from understanding to prescription and from prescription to change - pose challenges to judgement and ingenuity. If those challenges can be tackled and overcome, the effects on production and on rural equity should be dramatic.

Robert Chambers
Institute of Development Studies
University of Sussex, Brighton

KJC/SII
27.3.77