Chapter 8
Conclusions

8.1 Introduction

In this concluding chapter I aim to review the development of this ethical decision-support procedure termed *Reflective Ethical Mapping* (REM) both in relation to the pragmatist conceptual framework that I outlined in chapter 3, and importantly, to the practice of participatory technology assessment (PTA).

The thematic issues raised within this book highlight the breadth and complexity of ethical considerations that lay citizens bring into discussions on the governance of socially and ethically contentious technologies (SECT), discussed through reference to the practical case study of managing long-lived radioactive wastes. The key meta-ethical position worth reiterating here is that cultural discourse on technological risks should not be constrained solely within scientific and technical analysis of health and environmental impacts, costs or safety. Debate about the far reaching consequences of technological development and implementation cannot be a purely objective and factual discussion, bounded by the rationality of techno-scientific analysis. Neither quantitative risk assessments alone, nor finding ways to encourage better public understanding of scientific and technical issues will facilitate consensus building or public acceptance SECT in the public realm, because the nature of risk debates implicitly involves complex ethical issues, numerous and conflicting relationships, trust and social capital. Public reactions to controversial technologies are driven by conflicting perspectives on governmental, industry and stakeholder obligations towards communities, environments and future generations, and our understanding of ethics must inevitably lead to negotiation between competing interests based on divergent ethical perspectives.

The cultural, linguistic and participatory-deliberative turns in technology policy have served to broaden the realm of technology management debates out from the narrow confines of techno-scientific analysis, quantitative risk assessment and the forecasting of technological trends. These factors have allowed the normative and deliberative competency of citizen perspectives to be taken seriously in key decision-making contexts. In this book I have sought to provide practical tools to support ethical value-based discussions by facilitating a deliberative process that gives relevant ethical arguments fair and balanced consideration. Thus, the

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intention has been to contribute a novel methodological process to this fledgling field of ethical evaluation in participatory technology assessment (PTA) that not only adds to the theory of applied ethics in operationalising John Rawls's concept of *reflective equilibrium*, but also the practice of technology governance. My hope is that the application of the proposed reflective ethical mapping approach can facilitate better quality decisions over the management and implementation of SECT in society through explicit deliberation and reflection on ethical issues; and that it could be applied to other controversial policies where explicit ethical analysis is necessary to ensure the adequate social control of controversial technological programmes.

8.2 The Problem Focus

The research that underpins this book has taken the form of an experiment in practical philosophy, concerned with the application of both theoretical and practical thought with a view to action (Haldane 2012). In short, it is premised on the notion that not only should lay citizens somehow provide 'input' in the form of normative ethical values, but that they can, with no formal training in ethics, competently perform ethical evaluation in the form of an analytic-deliberative decision-support process which has practical policy implications. The supposition that grounded this methodological framework being that with the right tools and facilitator guidance, a lay citizen panel can perform the roles traditionally occupied by an ethics committee, forum or expert panel; moving through sequential stages of discussion to focus their analysis in a way that rivals formalised training in normative or applied ethics. The Reflective Ethical Mapping (REM) approach outlined in these chapters is therefore presented as a means to assist those who want to improve the quality of ethical deliberation by capturing a broad range of ethically relevant aspects of an issue, grounding them in a practical context and evaluating them both in light of the judgements they make and the principles that coherently 'fit'.

8.3 Ethical Tools

From early in the process of developing the reflective ethical mapping approach I envisaged the concept as an ethical toolbox or toolkit of methods suitable for PTA practice. To some extent this work sits alongside similar toolbox approaches that have gained popularity in the literature on ethics education and practical ethics, particularly those of Weston (2000) and Baggini and Fosl (2007). In both these examples, the concept of an ethical toolbox is a collection of thought procedures to tease out and evaluate ethical issues for different practical applications, with the emphasis upon individual learning, philosophical reflection and ethically informed decision-making. In contrast the Ethical Bio-Technology Assessment tools development process (Ethical Bio-TA project) (Kaiser et al.

2004) (of which some tools were assessed in chapter 4), sought to identify and test a series of existing practical and participatory methods in light of their potential contribution to ethical evaluation in different group-based policy making contexts, primarily around issues of governance in agriculture and food production (Forsberg 2007; Beekman and Brom 2007; Kaiser et al. 2004; Kaiser et al. 2007; Kaiser and Forsberg 2001). The substantive practical contribution that this book provides is something of a middle ground between these two approaches. It has specifically focussed upon ethical tool development, whereby tools are "…judgement aids that help justify value choices without recourse to substantive theories or value systems of limited scope" (Forsberg 2007). This has involved empirical testing of new group-based deliberative methods (in relation to the problem of radioactive waste management) but has also involved the development of a rationale or conceptual framework in which new techniques can be developed in the future.

Upon reflection on the practice of these deliberative workshops, it is clear that the toolkit metaphor has become somewhat redundant in the development of this approach. A toolkit implies distinct tools for different tasks, operating independently of one another. The REM approach has developed into a deliberative *procedure* operating sequentially, building ethical analysis through group discussion in discreet stages. Although it would be possible to substitute different tools and methods into the framework as the need arose, it is the sequential stages of issue mapping, judgement 'elicitation', principle based evaluation and creative problem solving that remain the essence of the REM approach.

8.4 The Ontology of Reflective Ethical Mapping

This approach is grounded within ontological (and hence meta-ethical) anti-foundationalism. A foundationalist ontology would tend towards a monistic meta-ethical claim that the proposed REM approach is the only appropriate set of methods to be used (or perhaps the best set of methods). Foundationalism and ethical absolutism have been rejected on the grounds that the preoccupation with general and abstract truths is counterproductive, in the sense that it distracts attention from concrete problems and conflicts tied to particular times, places and actors. I argue that ethical decision-making requires flexibility and context sensitivity to be successful. It is for this reason that a pragmatist approach has been adopted. Rather than arguing that these tools are the *right* ones to use, the intention has been to simply assess whether REM framework proves *useful*. The rationale for the development of ethical tools has thus been based upon what could be considered a non-reductionist ontology, in that it seeks to take into account a broad array of phenomena (including technical, scientific, principle and judgement-based factors) without reducing them to one or two core notions. I therefore attempt to present a methodology that attends to a great variety of human experiences rather than trying to find an underlying common phenomenon to explain 'how it all works'.

Where the pragmatism that informs this REM model differs from similar approaches (such as moral relativism) is in the *constructive* nature of the conceptual framework. The purpose of pragmatism's critique of traditional moral philosophy, in particular normative ethics, has been to open the way to new insight (Parker 1996) not merely deny that there can be any satisfactorily absolute moral answer. I have presented an argument that ethical action can only be discovered empirically through trial and error and that the morality of any evaluations that result are specific only to the particular situation, within a particular space and time. Thus, the goal has been to contribute the means to ethically evaluate SECT through exploring a complex network of techno-scientific and practical information and normative judgements and principles to generate practical solutions to real moral problems identified in a bottom-up manner.

The potential solutions derived from the workshops are not generalisable to all situations, they are specific, particular and open to reinterpretation and change. Similarly neither judgements nor principles are considered fixed, abstract or immutable; they are used as tools to evaluate the problems, not as ends in themselves (Farber 1999). The pragmatism I espouse also implies a commitment to reflective research - continually testing and shaping practice and theory, adding new tools and techniques or adapting existing ones. The programme of research therefore echoes Weston (2002), Mepham (2005) and Seedhouse (1998; 1988) when they assert that a tool is simply a means to assist ethical evaluation by clarifying thinking, argumentation and (in this case) embedding it within a specific policy-making context; rather than providing an assessment metric, substitute for critical thinking, or a new normative theory.

8.5 The Pragmatist Rationale for REM

As a project in philosophical pragmatism, practice become the primary mode of analysis, meaning that ethical evaluation can be found by paying attention to the practical consequences of theory (Rosenthal 1994), rather than defining the correct normative rules or principles through abstracted thought experimentation. Drawing upon the framework outlined by Keulartz et al. (2004) the role of traditional normative ethical theories has been repeatedly challenged throughout as being a limited conception of the ethical issues that technologies create. As shown in chapter 3, modern technological culture is dynamic in character. The development and implementation of new technologies alters social relationships within communities and so the ethical norms and values of a society are continually replaced as we are regularly confronted with novel moral problems. I have adopted this line of philosophical analysis; supporting the claim that traditional normative ethics is inherently 'technology blind' insofar as it places the rational moral actor in the centre and treats technologies as morally neutral tools in their hands.

Although pragmatist technology ethics may at first appear to be simply a blanket critique of normative theory-based approaches, in truth the challenge is more subtle.

New technologies cause new ethical problems to arise and the normative ethical frameworks that pre-date modern technological culture often simply lack the *vocabulary* to capture this dynamic character accurately (Keulartz et al. 2004). Technology challenges traditional ethical norms, impacting upon relationships among individuals and challenging how they deal with one another. For example, changes in the development and implementation of medical technology challenge traditional definitions of concepts such as *human life*; as illustrated in debates on contraception, abortion and euthanasia (Winston 2003); and similar conflicts have emerged over novel technologically defined moral problems such as those posed by genetically modified foods, xenotransplantation (organ transfer from animals to humans), or stem-cell research. As illustrated in the nuclear power and RWM examples used throughout this book, radiation risks similarly present novel moral challenges. As Weart (1988) argues, radiation is feared due to its propensity to transmute living organisms, and communities accepting nuclear facilities are often stigmatised because of this: perceived not simply as risky places, but as contaminating places – affecting perceptions of nuclear communities from within and without. Risk bearing technologies such as those related to the nuclear fuel cycle alter the social fabric of affected host communities and the relationships within and around them, which in turn has ethical ramifications that challenge the concept of technology as a morally neutral tool.

In relation to a pragmatist conception of technology ethics we must consider our moral theories, principles and personal judgements as methods of justification for evaluating ideas, seeking to understand the nature of ethical situations in order to see how they are constructed and contested; relying upon empirically given phenomena to search for useful generalisations and explanations. Iterative deliberation among affected citizens using REM is the proposed means to produce the aforementioned contextually relevant 'moral vocabulary' to accurately describe and assess the ethical issues inherent to the management of SECT; developing new terminologies of principles and judgements that are contextualised by practical matters (such as techno-scientific objectives and considerations), the normative competence of citizens in defining rational (and non-rational) moral judgements and their relationship to the plurality of citizen-stakeholder perspectives and values. Rather than applying pre-given normative rules or maxims to a practical situation, the more bottom-up REM approach allows the exploration of new possibilities by highlighting the practical and creative character of finding solutions to moral problems.

As previously stated, the REM approach is intended to operate as a multi-staged 'procedure'. This procedure has, purely for practical reasons, been condensed for practicality into a day-long process for structuring ethical deliberation. The one-day workshop format has the advantage of reducing costs and other resource constraints, however, in many Technology Assessment processes decision-making is likely to occur over much longer periods of time. It would likely prove useful to develop an iterative process of ethical deliberation that is spread across multiple meetings or venues; either by allowing time for reflection between the separate stages of the REM approach, or by repeating and refining the issue through multiple iterations in

consecutive workshops. This would allow time for participants to consider their inputs at different stages, reflect upon one another's values and develop greater competencies at ethical evaluation using the principle based terminology inherent to reflective equilibrium.

8.6 Practical and Empirical Considerations

When looking at some of the outputs presented in chapters 6 and 7, some may wonder if the citizen participants had the opportunity or capacity to develop what could arguably be termed sufficient *ethical evaluative competence* to make full use of the methods. Some such as Giovanni (2012) have suggested that deliberative competence, the capacity of individuals to rationally evaluate the complexities of the technology in question, should be the criterion through which we evaluate the efficacy of deliberative methods. However, I adopt a rather more optimistic stance, suggesting that rather than reliance upon *expertise* as the basis of sound assessment, we should instead focus upon the involvement of lay citizen participants and their *normative competency*, to borrow Davies and Burgess's (2004) term, or perhaps more specifically an *ethical communicative competency*. By this I mean that the emphasis should be upon the capacity of both the process and the individuals involved to draw upon technical, social and ethical criteria in constructing their arguments about RWM strategy. Thus it is their capacity to articulate and communicate their values clearly, rather than their expert knowledge or ability to wield ethical concepts, that is the important facet of the deliberative process. This is something of a controversial point, as the issue of technical competency is often considered central to the success of deliberative methods and processes, whereby *competent* participants are judged to have particular rational capacities and abilities that legitimate decision-outcomes. These competencies include the rationality and capacity of participants to seek consensus on the procedures that they want to employ, articulate and criticise factual claims on the basis of the "state of the art" of scientific knowledge and other forms of problem-adequate knowledge, interpret factual evidence through analytical reasoning, disclose their relevant values and preferences, process data, arguments and evaluations in a structured format (Renn and Webler 1995; Jaeger et al. 2001; Renn 1998).

Translating these concepts across to the aforementioned problem of ethical evaluative competence; the workshops displayed numerous examples whereby participants showed the ability to assess aspects of the socio-technical issues in terms of their own moral perspectives, communicate this to one another and to listen, consider the moral perspectives of others, using the methods to both record statements and conceptually structure the deliberation. The aspect of the process that proved most challenging for participants was the use of principle-based terminology because they often lacked familiarity with the concepts and the essentially intellectual procedures involved in their application to ethical problems. Therefore, they often failed to distinguish specifically ethical issues from technical, social or philosophical questions or concerns in the way that

experienced ethicists might be expected to do. In some respects the focus upon practical and social matters was a benefit, as it served to contextualise the problem with background, non-ethical concerns and thus come closer to realising Daniels's description of wide reflective equilibrium (Daniels 1979). One less desirable consequence, however, was that the different types of question were sometimes confused or conflated in the deliberative process, undermining the clarity of ethical discussion for other group members.

However, with sustained involvement using the tools over a longer period of time, citizen-stakeholders would gain competence in differentiating ethical from non-ethical matters and develop greater aptitude in relating one to the other. This problem was largely related to the practical constraints of working with 'novice', to use Dreyfus and Dreyfus's (2004) term, volunteers, without specialist support or sufficient prior information provision or exposure to the ethical tool based approach. As previously stated, the use of REM in the context of a long-term deliberative engagement process between the decision-makers and local community representatives would alleviate this problem. Such a process would entail a structured programme of constructive participant learning, and hence support the development over time of higher levels of ethical evaluative competency. In relation to this it is necessary to ground this proposed REM approach within the broader fields of analytic-deliberative methods and thus to reflect on the means to alleviate the problems of insufficient ethical evaluative competence.

8.7 Re-engaging Citizens with Specialists

Though the core argument is that ethicists and specialists on ethics panels and committees lack any special normative competency when compared to lay citizens, what they do possess, however, is greater experience in wielding theory to bear on practice and thus higher levels of ethical evaluative competency. Despite continued attempts throughout the REM development process to ease participants through the transition from thinking in concrete to more abstract terms, clearly there are some issues remaining which may be alleviated by incorporating ethical specialist support for citizens throughout the process. Guidance in this area comes from established analytic-deliberative methods such as Deliberative Mapping (DM), where scientific and technical specialists have been used to support citizen deliberation. In DM trials, specialists were first interviewed and their option assessment preferences recorded (using multi-criteria mapping software). In the subsequent workshops with citizens, specialists took part and supported them through the option assessment process (Burgess et al. 2004). The evidence from DM studies suggests that using ethical specialists in a similar support role could prove useful in future REM workshops. In the DM trial for RWM, the support role of specialists involved assisting in the initial provision of information to citizen participants, joining them in determining what each RWM option meant (including the technical elements and other social, economic, environmental and political implications), handling questions and comments informally during the meetings, providing additional information and participating in structured 'conversations' with pairs of citizens where each individual specialist

was questioned about the options for managing radioactive waste (Burgess et al. 2004). Adopting a similar approach to specialist input may therefore alleviate the difficulties encountered by lay participants, giving them more guidance and information and helping them to distinguish technical from ethical aspects with greater ease. Nevertheless, this does not negate the normative contention of this book, that the elicitation of ethical judgements and selection of ethical principles should remain participant-controlled in order to satisfy the bottom-up legitimacy of the ethical evaluations argued for throughout.

8.8 Application of the REM Approach to Decision-Support

This work has primarily focussed upon the development of a deliberative ethical assessment framework and the testing of new methodological approaches. Questions remain however over the translation of these new methods from a pilot study to real world policy-making. The research was hypothetical in nature, whereby participants had to imagine that their community would be chosen for a waste facility, rather than a real decision process in which the participants had an equally real interest, limiting the practice-focus needed to fully evaluate the REM approach. Despite this, however, guidance for integrating REM as a PTA decision-support tool is needed. One simple means to utilise REM could simply be as a one-off event, used in concert with other deliberative methods such as citizens' juries or consensus conferences. In the radioactive waste management example it is likely that ethical issues will arise through the deliberative engagement process with communities integral to the proposed partnership approach espoused by the UK government. REM is flexible in that it can provide an opportunity for stakeholders and citizens to consider ethical issues involved at the different decision points. The method could be used either as a one-off workshop to raise and evaluate ethical issues or ideally over a longer period, allowing participants to undergo a learning process and improve their competence in ethical evaluation. By doing so, improving the ethical competence of lay participants would make practice more 'intelligent' (Lekan 2006, Winston 2003), i.e. sensitive to carefully evaluated ethical concerns and justifications thus strengthening the ethical validity of the decision-making process.

8.9 Conclusions

The reflective ethical mapping approach (REM) provides a methodological toolkit or decision-support procedure that is bottom-up, participant led and coherentist in its approach and thus has legitimacy irrespective of the capacities of the individual participants for philosophical reflection. REM provides the means to first generate discussion about practical, technical and political matters; identify a series of actants, relationships between disparate elements within an actor network 'map' in terms of cause and consequence; reflect upon individual judgements about the ethical issues raised, and reformulate these judgements in light of ethical principles;

recontextualise principles in light of specific judgements and cases, and then draw the deliberation to a close by imagining future courses of action and choosing between them based upon personal preference grounded in deliberative ethical competence and social learning about the ethical considerations throughout. The methodological development of the REM approach as a sequential procedure for the consideration of ethics is not fixed or closed, not exclusively the purview of the professional ethicist, and open to any and all that wish to take part. The epistemological value of the REM approach principally lies in its structure as a coherentist model of ethical assessment that has both opening up and closing down mechanisms suitable for analytic deliberative decision-making as part of a PTA process. These methods outlined here are, however, illustrative rather than prescriptive. Other tools can be added or subtracted based upon case considerations, pilot testing, practitioner judgement and participant feedback; making this is a truly pragmatic project - open ended, case specific and based upon empirical testing and experience.

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