

***Why We Need More than Justification in the Ethics of Radiological Protection:
A View from Outside¹***

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In this paper, I discuss the International Commission on Radiological Protection's (ICRP's) ethical principles of radiological protection - and in particular their recent proposal to revise the recommendations based on those principles - from a particular point of view; namely, that of an outsider. I do this for two reasons. First, it seems to me that there is a strange mismatch between what the commission's principles seem, from the outside, to demand, and how they have actually been interpreted. Second, understanding this mismatch sheds some light on the controversy surrounding the recent proposals.

The paper is divided into five parts. In section I and II, I offer a brief sketch of the history of the ICRP's principles and how they have usually been implemented. In sections III and IV, I discuss two rival interpretations of those principles. In section V, I suggest that the mismatch between external appearance and internal interpretation poses a threat to the legitimacy of the ICRP system.

I. A Potted History

In 1977, the ICRP announced three basic principles of radiological protection:

Justification Principle (JP): No practice shall be adopted unless its introduction produces a positive net benefit.

Optimization Principle (OP): All exposures should be as low as reasonably achievable, economic and social factors being taken into account.

Dose Limit Principle (DLP): The doses to individuals shall not exceed the limits recommended for the appropriate circumstances by the Commission.²

These principles have remained the foundation for the ICRP approach ever since. In my remarks, I will be focusing on the role of the Justification Principle. But before I turn to that task, I want quickly to point out that the ICRP principles actually have a longer, more complicated history than the benchmark of 1977 might initially suggest. Moreover, I will suggest that this history suggests a certain evolution of the ICRP's basic approach.

For the basic history of the principles, I rely on the account offered by Roger Clarke, the Commission's Chairman, in 2003.³ I do not have space in this setting to go through that history

¹ The first draft of this paper was prepared for a workshop on the new ICRP proposals at Louvain-la-Neuve, Belgium, in May 2005, and was written while I was a Laurance S. Rockefeller Visiting Fellow at the Center for Human Values at Princeton University. I thank SCK.CEN, the Center for Human Values and the University of Washington for their support. I am also grateful to Axel Gosseries and two anonymous referees for their comments.

² ICRP 1977, cited by Clarke 2003, 41.

in any detail. So, here let me just make three bold claims, and then illustrate them without argument. First, the evolution of the ICRP approach goes through five main phases. Second, each of the phases is associated with the dominance of what we might see as some form of one of the three 1977 principles. Third, there is a sense in which the current phase – the one represented by the new ICRP proposals – returns us right back to the beginning.

The first phase of the ICRP approach I call the “Threshold Phase”, and it lasts up until the 1950s. During this time, the Commission was concerned to avoid deterministic effects to those working in the radiation field, and “the principle of radiological protection was to keep *individual doses* below the relevant *thresholds*”.⁴ Hence, the ICRP endorsed a form of the Dose Limit Principle.

The second phase I call the “Acceptance Phase”. This began in 1955, when, Clarke tells us, in light of new biological information indicating that there were stochastic effects of exposure, the ICRP underwent a “change in philosophy”. Now its concern was with “limiting the probability of harm”, and so with estimating probability and deciding what level of risk was unacceptable.⁵ Several new principles were floated in the 1955 document, but the one with the most lasting traction was a version of what we now call the Optimization Principle:

“In view of the incomplete evidence on which the (risk) values are based coupled with the knowledge that some effects are irreversible and cumulative ... it is strongly recommended that every effort be made to reduce exposure to all types of ionizing radiation to the lowest possible level.”⁶

Debate about the meaning of this version of the OP quickly ensued, and culminated in 1977 in the beginning of the third phase, with the introduction of the current three-principle system. This phase is appropriately labeled the ‘Justification Phase’, since, to resolve the problem of how to interpret the OP, the JP was introduced, and thenceforth the OP and DLP were widely interpreted as being subordinate to it. Given this, since 1977, the JP has often been described as the “cornerstone” of ICRP philosophy.

Some writers appear to assume that the Justification Phase has continued until the present day. But Clarke’s remarks suggest the beginning of a new, less obvious phase in 1990. By this time, Clarke reports, the Commission had begun to be concerned about the lack of sufficient protection for the individual provided by the ICRP system. Hence, it inserted an extra restriction designed to protect individuals. The Optimization Principle, which by then had in any case become the most important principle from a practical point of view, was now to limit the dose an individual could receive from a given source.⁷ (Call this, the ‘Constraint Phase’.)

Finally, we now find ourselves on the edge of a new phase in the development of the ICRP’s approach. In its latest proposals, the ICRP has made its recent concern about individual

³ Of course, I will be making some claims about how we should interpret that history that Clarke does not. However, my divisions are based on his understanding of the history, and so I hope that they are reasonable in light of that understanding.

⁴ Clarke 2003, 40; emphasis in original.

⁵ Clarke 2003, 41.

⁶ Clarke 2003, 41.

⁷ Clarke 2003, 43.

exposures more central and, as a result, is now emphasizing the DLP once again.⁸ So, we may be about to enter a new phase, ‘the Dose Limit Phase’. This, of course, has some affinity with the first phase, where a DLP was also present, albeit in the very different setting of deterministic, rather than stochastic effects.

Now, the point of this potted history is to make clear that each of the three principles of radiological protection has a long history, and has evolved in part as a response to the perceived problems of the other principles. In particular, versions of the DLP and OP predate the JP, which suggests both that they may have standing in their own right, and also that they may not be sufficient to the task considered alone. It is with these thoughts in mind that I now turn to considering the recent controversy surrounding the Justification Principle.

II. Justification in Practice

The Justification Principle is often described as “a cornerstone of ICRP and IAEA ethical philosophy”.⁹ But this claim requires some explanation, since in practice the JP is seldom invoked.¹⁰ There appear to be several reasons for this practical neglect. First, it is observed that the principle calls on factors other than those specific to radiation, whose relevance must be determined elsewhere, by institutions other than radiation protection agencies. For example, the Committee on Radiation Protection and Public Health of the OECD Nuclear Energy Agency says:

“Decisions about the justification of a practice or activity involving radiation exposure usually involve a broad range of social, economic and political issues in addition to those concerning radiological protection ... *Justification is essentially a political decision-making process, in which the technical and purely radiation-related advantages or detriments play an important, but relatively limited role.*”¹¹

Second, the JP is said to be vague, and not to offer firm guidance. For example, Kristin Shrader-Frechette and Lars Persson say:

“... most risk, cost, and benefit calculations are, to some degree, *arbitrary*, insofar as they depend on the chosen population and distribution.”¹²

Third, any given interpretation of the JP is said to involve “difficult” value judgments:

“Assessing the likelihood that any practice will produce a net benefit involves many value judgments that are difficult, if not impossible, to quantify.”¹³

⁸ Although the DLP has officially persisted throughout the ICRP’s existence, Clarke claims that during the Justification Phase it was interpreted in such a way that it was simply derivative of the justification principle, and so did not really function as an independent constraint. (See later.)

⁹ Institute for Energy and Environmental Research (IEER), 1998; Shrader-Frechette and Persson 2001, 11-12.

¹⁰ The IEER says that “the application of this principle to a particular situation in the nuclear industry, whether civil or military, is rarely discussed”, and it adds in an endnote that “QUEST Radiation Database (1992) gave just 5 references to “justification” but 91 to the principle of optimization”, note 6.

¹¹ Nuclear Energy Agency 1982, 15; emphasis added.

¹² Shrader-Frechette and Persson 2001, 14; emphasis added.

¹³ IEER 1998.

These concerns suggest that implementing the JP is not a matter for expert judgment, or at least not for the judgment of radiation experts. Moreover, the claim is made that the issues surrounding it are best resolved through a political process.

Now, such concerns appear to be one reason for the ICRP's current proposal to distance itself from the operations of the Justification Principle.¹⁴ A tendency to distancing has been evident for some time. For example, in 1990, the ICRP emphasized the need for external determination:

“The commission recommends that, when practices involving exposure, or potential exposure, to radiation are being considered, the radiation detriment should be explicitly included in the process of choice. The detriment to be considered is not confined to that associated with radiation – it includes other detriments and the costs of the practice. Often, the radiation detriment will be a small part of the total. *The justification of a practice thus goes far beyond the scope of radiological protection ... To search for the best of all the available options is usually a task beyond the responsibility of radiological protection agencies.*”¹⁵

Similarly, Clarke emphasizes the inevitable “qualitative” and political aspects of decision-making under the JP:

“The Commission’s present recommendations for justification require that the endeavor should do more good than harm. This procedure implies a quantified balance of costs and benefits, but in practice, governments, physicians, or individuals do not make decisions about courses of action in a predominantly quantitative way. A qualitative approach is more common and usually more appropriate ...”¹⁶

Ostensibly in light of such concerns, the latest ICRP proposals de-emphasize the JP, at least as an issue for radiological protection agencies. The question thus arises: Is this a problem? Should we worry about the apparent decline of the role of the JP?

There is one sense in which I think the answer is clearly ‘yes’. It seems to me that the ICRP moves too quickly between two superficially similar, but fundamentally different claims. The first is that typically radiological protection agencies do not have either the capacity or the responsibility to do the calculations necessary to determine whether the JP has been satisfied on a particular occasion. This claim raises some serious issues. (For example, I am skeptical of one of the rationales offered for deference – that application of the JP requires value judgments that are difficult to quantify. Much might be said about this, but here I will restrict myself to four brief remarks. First, there are likely to be clear cases where precise quantification is unnecessary. Second, it is not clear that quantification as such – as opposed to, say, justification and defense - is relevant. Third, to announce or endorse any principles of radiological protection is already to be in the business of making value judgments, so it is not clear what special problem is posed by the JP in particular in this regard. Fourth, and relatedly, Clarke is too quick to associate science with the quantitative, on the one hand, and ethical considerations with the

¹⁴ The other reason is a “shift of the ethical position from utilitarian values” (Clarke 2003, 43). I discuss this below.

¹⁵ ICRP 1991, para. 115; emphasis added.

¹⁶ Clarke 2003, 45.

qualitative, on the other. Many ethical questions require quantitative answers, and many scientific questions are resolved in a qualitative way, so the various categories overlap.) Nevertheless, in the end, I suspect that the claim of deference is justified. Hence, I will not focus on it here. Instead, I wish to draw attention to the second claim.

The second claim is that radiological agencies have no role to play in matters regarding the implementation of the JP. The ICRP appears to infer this second claim from the first. But I think that both the inference and the claim itself are mistaken. My basic point is this. Even if a given radiological protection association does not have the capacity or responsibility actually to make the calculations required by the JP, it might still contribute to the processes involved in making and assessing them. For example, an association might well be in a position to judge *whether* calculations have actually been done, and *whether* they are adequate within some range.¹⁷ Here an appropriate analogy might be with the role of a court in regulating the conduct of a government agency. Such a court may not have the capacity or the responsibility to make judgments about highly specific matters concerning the day-to-day running of the agency. Still, it may have a role to play in determining whether the agency is living up to its fundamental constitutional objectives. Hence, for example, if the agency is ignoring its basic commitments, or interpreting them in a bizarre way, the court can play a role in suggesting that something has gone wrong, making public its concerns, demanding further explanations (perhaps by independent bodies which do have expertise), and so on. Even though its expertise is limited, this does not imply that it should abdicate its role as an overseer completely.¹⁸

One substantial reason to resist the ICRP's apparent move away from the JP is, then, that it may cause associations to neglect some of their social responsibilities. But is there more at stake than this?

III. The Utilitarian Interpretation

On one interpretation, the answer is clearly 'yes'. This is the view that the JP is essentially a utilitarian principle – it claims that the morally right thing to do is to bring about the maximum net benefits - and as such sets down the criterion through which the other two principles of radiological protection should be understood. This interpretation has two main advantages. First, it provides a clear sense in which the JP serves as a cornerstone of the ICRP's system of radiological protection. For one thing, utilitarianism is a general and pervasive moral position. For another, without the context supplied by such a position, it is unclear how the Optimization and Dose Limit principles are to be understood. Second, historically, this is how the JP and its role seem actually to have been understood. Describing the 1977 recommendations, Roger Clarke states that the JP and OP were explicitly conceived of by the ICRP in maximizing terms, and as requiring a "classical use of cost-benefit analysis"¹⁹ for their implementation. For example, Clarke says:

“The principles of justification and optimisation aim at doing more good than harm and at *maximizing the margin of good over harm for society as a whole*. They therefore satisfy the *utilitarian principle of ethics*, whereby actions are judged by their overall

¹⁷ An association may also have other roles to play with respect to the Justification Principle, such as in offering education and advice.

¹⁸ Moreover, one might well argue that the role of a radiological agency ought to be considerably wider than that of a court, including at least some policy-making component.

¹⁹ Clarke 2003, 42.

consequences, usually by comparing in monetary terms the relevant benefits (e.g., statistical estimates of lives saved) obtained by a particular protective measure with the net cost of introducing that measure.”²⁰

In light of this, Clarke adds, the DLP was regarded as both a secondary concern, and as ultimately something to be derived from the dictates of traditional CBA. This is because (he states) in practice individual dose limits were derived from estimates of acceptable collective doses, rather than having a foundation in concerns for individual exposures considered as such:

“In 1977, the establishment of the dose limits was of secondary concern to the CBA and use of collective dose. This can be seen in the wording used by ICRP in setting its dose limit for members of the public. Publication 26 states: “The assumption of a total risk of the order of 10⁻² Sv⁻¹ would imply restriction of the lifetime dose to the individual member of the public to 1mSv per year. The Commission’s recommended limit of 5 mSv in a year, as applied to critical groups, has been found to give this degree of safety and the Commission recommends its continued use.” In a similar manner the dose limit for workers was argued on a comparison of average doses and therefore risk in the workforce with average risks in industries that would be recognized as being ‘safe’, and not on maximum risks to be accepted.”²¹

On the traditional CBA interpretation, then, there are good reasons for alarm about the decline of the JP. The first is practical. Without the cornerstone of the JP, the OP and DLP will lose their context and meaning; hence, the whole house of the ICRP system will fall down: the emperor will have no clothes. The second reason is theoretical. Some advocates of CBA will claim that departures from its criteria are both irrational and immoral. CBA (we will be told) is the only rational method for resolving policy questions, and also the only moral one. To forsake utility²² is to forsake morality itself, probably in favor of confusion and the politics of special interests.

Despite the apparent historical role of traditional CBA in defining the JP in practice, I believe that such arguments are overstated. There are two basic reasons. The first reason is that, as a matter of practice, we have already heard that the JP itself is seldom invoked in actual discussions of radiological projects. Instead, the impact of CBA is felt through the interpretations it provides of the OP and DLP. Since these principles are still in place, there is no reason to think that CBA as such will be dislodged merely by the reduced emphasis on the JP; it may simply reemerge elsewhere, when the other principles are interpreted.

The second reason is that, as a matter of theory, it is not true that departures from traditional CBA must be irrational or immoral. For one thing, the above arguments misrepresent the relationship between traditional CBA and utilitarianism. Utilitarianism demands that happiness be maximized. Traditional CBA aims to do this, through direct calculation of the costs and benefits of various actions. But, interestingly, it has long been observed in utilitarian circles that direct calculation is usually not the best way to maximize happiness overall, and that

²⁰ Clarke 2003, 41; emphases added. Shrader-Frechette and Persson also call the JP a utilitarian principle. (See their 2001, 12.)

²¹ Clarke 2003, 42.

²² The term ‘utility’ is used in different ways. Here I intend it to refer to whatever the utilitarian doctrine tells us to maximize. Hence, I shall use ‘happiness’, ‘welfare’ and ‘utility’ interchangeably.

other, more indirect approaches do better. Hence, as it happens, most serious utilitarians would probably reject the claim that their theory ought to be operationalized through a widespread adoption of CBA, and would claim instead that utilitarianism would demand that other principles for decision-making be employed. This implies that it is possible – even likely – that there are good utilitarian reasons *against* adopting CBA as a decision-making procedure. But if this is so, then it is an open question what the best principles of radiological protection would be, even on utilitarian grounds.²³

Even more importantly, utilitarianism is not the only respectable moral theory on the market. Hence, it is controversial at best (and bare partisan posturing at worst) simply to assert that other views must be irrational or immoral. Moreover, most other respectable theories do give substantial weight to happiness - that is, they admit that individual welfare is one thing that matters. They just claim that other things, such as the rights and integrity of individuals, also matter (and in their own right, not just because they contribute to happiness), or else, they claim that maximization is not the right approach to take towards what matters – for example, an equal distribution, or one in which everyone’s allocation is sufficient, is deemed more appropriate. The ICRP has recently distanced itself from utilitarianism, presumably because it finds itself in sympathy with at least some of these rival views. But this need not mean that it has lost track of the fact that happiness is an important concern of morality.

In short, we need not think that the fading of the JP implies either the collapse of the ICRP system, or an end to concerns about human welfare within that system. Nonetheless, it is true that the retreat of the JP brings into focus some important questions about how the ICRP system is to be understood, questions that (as we shall see) arguably should have been on the agenda in any case.

IV. The Side-Constraint Interpretation

We have just seen some theoretical reasons to be concerned about the utilitarian interpretation of the JP. But there is also a more serious practical concern. This is that this interpretation does not follow from what the principle actually says. As stated, the JP asserts: “No practice shall be adopted unless its introduction produces a positive net benefit”. On the face of it, the surface grammar of this statement suggests that the JP serves as a *side-constraint* on projects that emit ionizing radiation. That is, it claims that it is a minimal condition for the acceptability of a project that its benefits exceed its costs: no project that does not meet this criterion shall be allowed. (Call this ‘the Constraint Interpretation’; and the resulting principle ‘the Constrained Justification Principle’ (CJP).)²⁴ But it is instantly apparent that the CJP is not a utilitarian principle. For one thing, it makes no mention of *maximization*. It does not, that is, demand that a given project produce the maximum net benefit that might be produced by that (or any rival) project. It asks only that the project pass a threshold test: it must be neither costly nor neutral; it must actually produce *some net benefit*.²⁵ For another, the CJP announces a *necessary*

²³ One intriguing possibility is that the optimization and dose limit principles *interpreted in ways other than through traditional CBA* might serve as such principles.

²⁴ Note that this principle is not so minimal as to be irrelevant. As proponents of CBA often remind us, many public policies have been taken to serve particular interests rather than the public good, and the real world is replete with various subsidies and externalities. Hence, even on the constraint interpretation, the JP has some force.

²⁵ The idea of “net benefit” clearly presupposes some benchmark. Historically, CBA was originally introduced as a technique evaluating new projects. Hence, the benchmark was the status quo. If the CJP has a similar purview, then it states that a new project passes its test if its benefits outweigh its costs. But a commentator on a previous draft

condition for a project's being approved, rather than a sufficient condition. That is, it does not say that a project will definitely be approved if it produces a net benefit, only that it will not be approved if it does not. Thus, it leaves open the possibility that there may be reasons for refusing to undertake a project even if it has net benefits.

If the CJP is not a utilitarian principle, a number of questions arise. The first two are procedural: what justified the historical interpretation of the ICRP system of principles and of the justification principle in particular as ultimately utilitarian? And, why wasn't this utilitarian account incorporated more explicitly? The third is more substantive: what difference does the side-constraint interpretation make to how we understand the apparent retreat from justification? I defer discussion of the procedural questions until section V. For now, let us focus on the substantive question, and take a brief look at how taking the CJP seriously may complicate how the ICRP system is understood.

The first thing to notice is that, in asserting a necessary rather than sufficient condition, the CJP, as opposed to the utilitarian justification principle, already allows for factors other than happiness to play a role in decision-making. This is interesting insofar as it reveals that if it wants to recognize other values, the ICRP does not *need* to distance itself from the justification principle as it is actually stated. The constraint interpretation already allows for this.²⁶ Hence, one rationale for the downgrading of the justification principle is removed.

The second thing to notice is that the CJP may make too weak a demand on behalf of happiness. For example, even pluralists about value may hold that considerations of happiness become decisive after some other values (such as rights) have been satisfied. But on such views, there seems to be no reason to say that the demands of happiness are satisfied merely by a requirement of net benefit, rather than something stronger. For example, a pluralist may claim

suggested that "the JP requires more than just a positive economic/social benefit of the introduced practice: it requires ... the idea of bringing a higher benefit than the existing practice". This interpretation appears (a) to apply the CJP to improvements to (or replacements of) existing practices, not just to new projects considered as such, and (b) to introduce a different method of comparison: changes must surpass the efficiency standards of the status quo.

Let me begin with two specific comments before turning to some more general remarks. First, I suspect that (a) is a minor emendation. Improvements to existing projects can be and often are treated as "new" projects to be added onto the old. Second, (b) is more tricky. Other things being equal, a more beneficial practice is to be preferred to a less beneficial one; so, it will be a problem if the CJP licenses less efficient projects than others that are also available. (This amounts to the point I make below about the non-maximizing character of the CJP.) However, the 'other things being equal' clause is important. The commentator's proposal that projects which do not meet the economic benchmark be disallowed seems too strong. Suppose, for example, that dramatic improvements in meeting some other policy goal could be achieved by a minor reduction in net benefits (e.g., suppose that one is considering adopting a new safety feature which is relatively inexpensive). Then, that reduction need not be a decisive blow against the project.

More generally, the commentator's proposal helps bring to light some deeper questions about normal CBA. Clearly, taking the status quo as a benchmark can be problematic, even from a utilitarian point of view. For one thing, the status quo may be inefficient, and unjustifiably embed special interests, especially if the flaws are structural. If this is the case, then accepting the status quo as the relevant benchmark might stand in the way of more general change that would be very beneficial. For another thing, it is not always true that individual moves that look beneficial in isolation add up to an outcome that is better overall than some other that is available. For example, in the prisoner's dilemma or tragedy of the commons cases, individually beneficial actions turn out to be collectively suboptimal.

²⁶ Both the utilitarian and traditional CBA interpretations of the JP appear to demand that a project *must* be approved if it maximizes net benefits, since the former is a maximizing doctrine, and the latter supposes that the other two principles of radiological protection are simply subservient to the JP. But none of these claims follows from the CJP.

that if other things – such as rights, equality, and so on - really are equal, then we have a decisive reason to choose more over less happiness. (What can be said for settling for less?) If this is correct, then the CJP need not exhaust the proper role of happiness in decisions about radiological protection, even given the need to accommodate other values. Thus, the CJP may be importantly incomplete even on grounds of utility; and this suggests that other, independent principles may be needed to supplement it. Even utilitarians, then, might have reason to be interested in such principles.²⁷

The third thing to notice concerns the relationship between CJP and CBA. The CJP is not obviously compatible with a traditional, maximizing conception of CBA. However, it does appear to be consistent with an alternative account of CBA put forward by several of its most sophisticated contemporary defenders.²⁸ This account has two relevant features. First, it states that CBA should not be seen as an all-inclusive method of evaluation, but at most only as a necessary constituent of the decision-making process. Most importantly, this suggests that many sophisticated defenders of CBA would be sympathetic to the side-constraint aspect of the CJP. But it also implies that additional concerns will need to be taken into account, presumably in the form of other principles. Hence, it allows for (and perhaps requires) a system of independent principles based on different values that need to be integrated in decision-making.²⁹ Second, proponents of the alternative account of CBA assert that the relevant kind of CBA is one that takes *all* costs and benefits into account. This also suggests a pluralistic system. Since calculations of all costs and benefits are difficult in general, and perhaps impossible for long term policies such as those involving nuclear protection, there may be a need for additional, “second-best” principles even when our concern is simply with accounting for costs and benefits.³⁰

From this discussion, the main conclusions are as follows. First, as stated, the justification principle does not license the traditional interpretation of the system of radiological protection as Clarke represents it. Second, a more appropriate interpretation suggests that additional, independent principles will be needed. Third, and of particular interest, this suggests a possible role for the optimization and dose limit principles: perhaps they could function as the required independent principles. However, this is something that would have to be shown rather than simply asserted. In particular, it would have to be demonstrated that the OP and DLP adequately capture those values important to the nuclear debate that the constrained justification principle appears to leave out.

From these points we can conclude that the ICRP system already allows for, and indeed requires, a firmer grounding than the CJP provides. But it is worth noting that this is an awkward result. For it simultaneously casts doubt both on the reasons offered by the ICRP for revising the system, and on some of the resistance to those revisions. Still, it does clearly indicate the work that needs to be done. Even if the CJP is retained, additional principles are needed. Perhaps these are the OP and the DLP; but even if this is correct, their content, basis, and role within the ICRP system should be clarified.

²⁷ Hence, if it turned out that, on some interpretation, the OP and the DLP could serve this purpose, even utilitarians would have reason to prevent their being seen as simply derivative of the CJP.

²⁸ E.g., Schmidt 2001.

²⁹ Again, in the present context, this suggests that the OP and DLP might function as such principles.

³⁰ Again, this suggests a possible role for the OP and DLP. Note that although the principles would ultimately be derived from CBA under this interpretation of their role, this does not imply the simple subservience suggested by Clarke’s account of the history.

V. The View from Outside

This last point brings us back the procedural questions raised above: how did the utilitarian understanding of the ICRP system come about, and why was that understanding not more perspicuous in how the principles were stated? These are interesting questions; but my main concern here is not with how they are answered, but with the fact that they have to be asked at all. I confess that, from the perspective of an outsider, the gap between the basic statement of the justification principle and the way in which it has traditionally been understood strikes me as disturbing.

But perhaps I should not be disturbed. Perhaps some will contend that the gap makes no difference because those actually involved in nuclear protection understood from context that the JP was intended to be a maximizing principle of CBA. I have two concerns about this response. First, the basic claim it makes appears not to be true. Several practitioners in Europe have told me that in their experience the JP was not understood in this way in particular countries and regions. If this is correct, then there seems to have been a serious mismatch not just between how the principles are stated and how they were understood by the ICRP, but also between the understandings of the ICRP and other radiological protection institutions employing the principles. And this seems to be a problem in itself.³¹

Second, even if it were true that all those inside the industry knew that the ICRP principles were not to be understood as stated, a serious problem would still remain. For, in the view of many political philosophers, it is important for their *political legitimacy* that certain kinds of political principles be genuinely *public*³², where this requires both that there be at least a close correspondence between how they look to the world at large and how they actually manifest themselves in practice, and also that their justifications be relatively transparent to those governed by them. Now, this is not the place to open up discussion of such views.³³ So, here I will simply assume that they have some *prima facie* plausibility and appeal, at least for democratic nations, and make the point that they do seem relevant in the current context. This is because they suggest that if the ICRP principles fail to meet the relevant publicity requirement, then both the ICRP system itself, and also the wider global framework of nuclear regulation that depends on it, might be rendered *politically illegitimate*. This would be a serious matter. And it suggests that the interpretive issues raised in this paper deserve attention.

VI. Conclusion

This chapter has examined the traditional interpretation of ICRP's ethical principles of radiological protection, and in particular its emphasis on the principle of justification, and found it to be philosophically problematic for three basic reasons. First, in claiming to have a

³¹ A further way of disarming my concerns would be to claim that Clarke's understanding of the history is deeply flawed and idiosyncratic. As an outsider, I am not in a position to make an informed judgment about this. However, we should note that at the time that the article was published, Clarke was Chairman of the ICRP, and that the article appears in a discipline-specific journal. This implies, first, that the claim that he is seriously misinformed is *prima facie* implausible, and, second, that even if it were true, new questions would arise about how such a serious discrepancy between the views of the Chairman of the ICRP and the proper understanding of ICRP principles could both come about and be promulgated.

³² For an overview, see Gosseries 2005, especially section 3.1.

³³ Obviously, some account is needed as to what this would amount to in general and in particular circumstances. But the fact that the ethical foundations of the ICRP system are initially opaque even to those trained in moral theory suggests that the concern will loom large on any plausible account.

utilitarian foundation, the traditional view appears to underestimate both the sophistication of that view, and the relevance of alternative positions. Second, there appears to be a serious mismatch between the basic statement of the ICRP's principles and how the traditional interpretation understands them. Third, even if these problems could be neutralized, a significant issue would still remain. It seems to many that, if they are to be politically legitimate, principles such as those put forward by the ICRP must be public in an important sense. Hence, the presence of basic interpretive confusions is itself relevant in assessing the acceptability of the ICRP system. Put starkly, the thought is that on matters such as this, there really ought to be no view from outside.³⁴

³⁴ The version of this paper presented at the workshop was considerably longer than the current version, and included a section on how one might interpret the three principles according to a precautionary approach. I regret that constraints of space do not allow me to pursue that issue here. For my general approach to the precautionary principle, see Gardiner 2006.

References

- Clarke, Roger. 2003. *International Journal of Low Radiation* 1.1, 39-49.
- Gardiner, Stephen. 2006. 'A Core Precautionary Principle'. *Journal of Political Philosophy*, Volume 14, Number 1, 2006, 33-60.
- Gosseries, Axel. 2005. Publicity. *Stanford Encyclopedia of Philosophy*.
- International Commission on Radiological Protection [ICRP]. 1977. Recommendations of the International Commission on Radiological Protection, Publication 26, Annals of the ICRP, Vol. 1, No. 3.
- _____. 1991. 1990 Recommendations of the International Commission on Radiological Protection, Publication 60, Annals of the ICRP, Vol. 21, No. 1-3.
- Institute for Energy and Environmental Research, [IEER] "Science for the Critical Masses: Radiation Protection", *Energy and Security* #4, 1998. Available at www.ieer.org;
- Nuclear Energy Agency, Committee on Radiation Protection and Public Health, "Applicability of the ICRP Principle of Justification of a Practice to Radiological Protection Standards", *Journal of the Society for Radiological Protection* 2.4 (1982),
- Schmidtz, David. 2001. A Place for Cost-Benefit Analysis. *Nous* 11, suppl.: 148-71.
- Shrader-Frechette, Kristen and Persson, Lars. 2001. Ethical Problems in Radiation Protection. Swedish Radiation Protection Institute, 11.