The Ethical Foundations of Environmental Radiological Protection

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Assessing the potential ecological impact of ionising radiation raises a number of ethical questions. These include fundamental questions such as what exactly constitutes harming the environment and how the environment should be valued, as well as links to political protection principles such as sustainability and biodiversity. Starting from developments within ecological risk assessment, the paper will summarise some of the ethical issues concerning the protection of the environment from radiation. The first part gives an overview of different philosophical and cultural worldviews on valuing the environment in a context of radiation risk. The second part addresses some recent challenges to proposed environmental protection frameworks, including practical applications following the Chernobyl and Fukushima accidents, and scientific developments such as the ecosystem approach. The final part of the paper offers some recommendations on how ethical evaluation can aid in producing a robust and transparent approach to protection of the environment. In conclusion, there is a need for a holistic evaluation of the environmental impacts of ionising radiation that not only considers the direct consequences on the health of humans and non-human species, but also the more complex social, ethical, and economic consequences of both human and non-human exposures.