

80. Risk and Escape Policies, Perspectives, and Practices: Issues and Implications for Biosystems Design R&D on Microbes, Algae, and Plants

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Project Goals. This project that aims to identify circumstances that create, amplify, or diminish environmental and health risks associated with biosystems design research and development (R&D), thereby revealing new opportunities for avoiding or managing those risks. It takes a systems approach that places biosystems design risk and containment within the R&D context.

This poster describes a new research project that explores risk and containment issues associated with biosystems design (synthetic biology) R&D from social and institutional perspectives. It views the R&D context as part of a complex system, and focuses on key elements that have the potential to contribute to or reduce environmental and health risks associated with biosystems design R&D. Inquiries will explore such key elements of R&D context as social and institutional interactions, research setting, research approach, and organism studied. To identify circumstances and new opportunities for avoiding or managing biosystems design R&D-related risks, questions principally will address:

- sources of variability in R&D context that influence the potential for environmental and health risks;
- risk and escape implications of current risk and containment practices; and
- gaps in current containment practices that inadvertently may increase risks and signal the need for new practices.

Questions will be investigated from three different perspectives: (a) formal (e.g., journal articles) and informal (e.g., news articles, reports, and the like) accounts and documentation; (b) scientists engaged in biosystems design R&D; and (c) other parties key to the achievement of biosafety in R&D settings, such as biosafety committee members, laboratory safety managers, and waste handlers. Research will focus on primarily on biosystems design R&D oriented toward next- generation biofuels and a subset of the U.S.-based research projects and institutions engaged in this work. Secondly, limited attention will be paid to dual use, European research or risk/containment efforts, and a wider array of scientists—including a portion of the do-it-yourself (DIY) community.

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