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Problem Formulation and Options Assessment: Science-guided Deliberation in Environmental Risk Assessment of Transgenic Fish

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Introduction

Problem formulation and options assessment (PFOA)¹ is one cornerstone of an environmental risk assessment for transgenic organisms. It is public deliberation about a transgenic organism, and provides a rational, science-guided planning process by which multiple stakeholders can assess shared needs, evaluate risks related to a variety of future options and make recommendations to decision makers about policies that reduce societal risks and enhance the benefits provided by various options. It establishes the framework for interaction between stakeholders and scientists, guides deliberation among stakeholders and provides a linkage to biosafety governance. Public deliberation about transgenic organisms is often conflict-ridden; a PFOA process can help alleviate this tension through transparent, systematic and science-based discussion. A decision-making process can gain social legitimacy by incorporating a PFOA, and thereby society gains greater confidence in the decisions taken as a result of an environmental risk assessment.

To facilitate socially acceptable choices (NRC, 1996), countries must create a socially responsive risk assessment system. At its core, the PFOA discussion assesses whether a transgenic organism can address particular problems and, if so, under what conditions. PFOA focuses on the critical societal needs addressed by the transgenic organism and the risks associated with using it. Acting on societal needs and their associated risks requires informed reflection by a cross section of society's members. A deliberative process with multi-stakeholder

¹ The description of the PFOA methodology has been modified from that of Nelson *et al.* (2004) developed within the GMO ERA Project (2006); see Nelson and Banker (2007).