



GRAHAM ENVIRONMENTAL
SUSTAINABILITY **INSTITUTE**

Employing Integrated Assessment to Promote Engaged Problem-Solving for Sustainability

*Great Lakes and Great Rivers Section
of the Society of Naval Architects and
Marine Engineers – Fall Meeting*

John Callewaert
October 5, 2012





Vision: to foster sustainability on local-to-global scales by solving systemic problems at the human-environment interface that endanger ecosystems and the well-being of future generations

• **Education**

- Undergraduate Scholars Program
 - *Interdisciplinary thinking, field-based learning, and leadership*
- Doctoral Fellows Program
- *New professional and post doctoral programs next year*

• **Outreach**

- Campus and Community Events

• **Research**

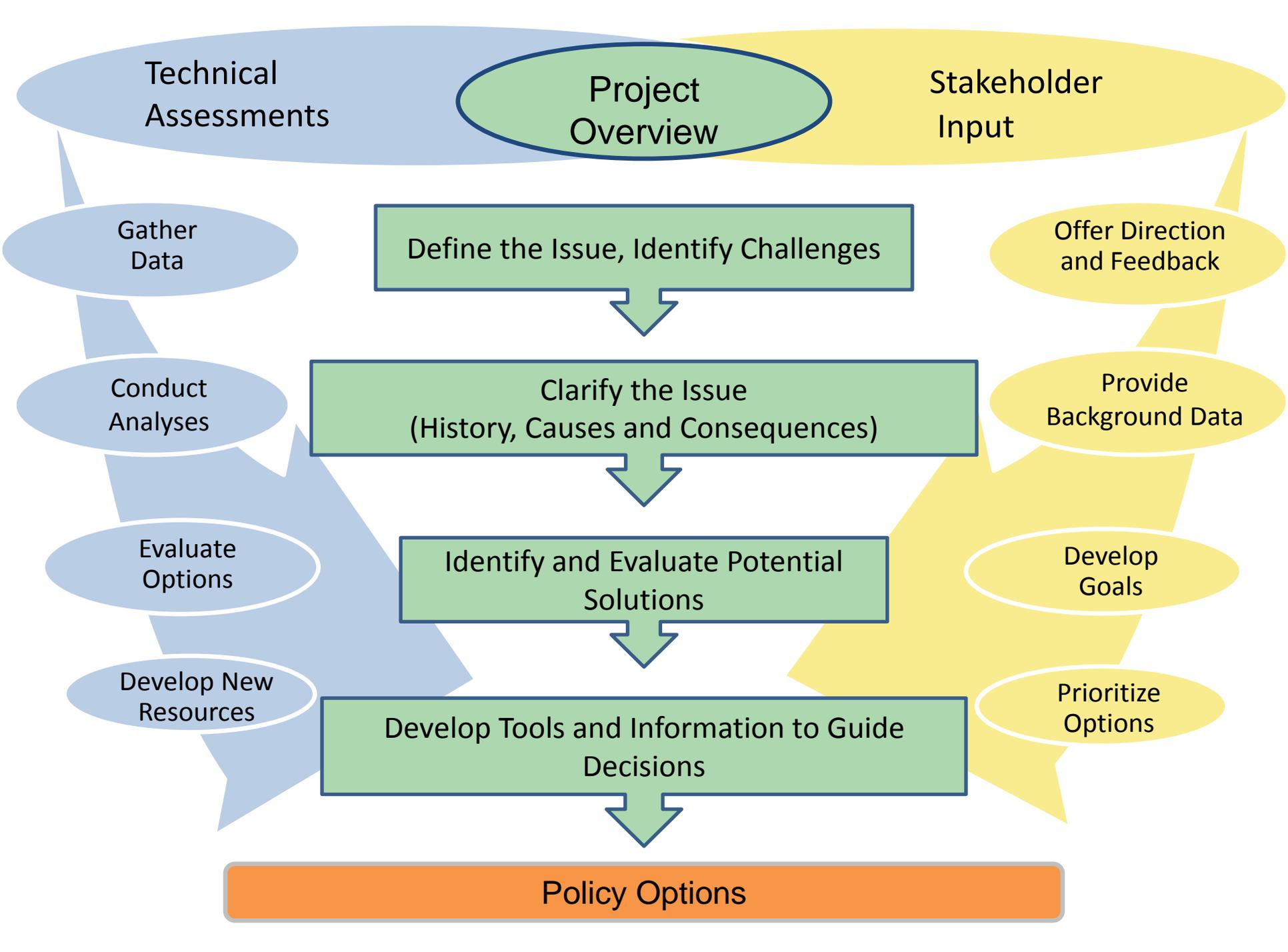
- Integrated Assessment



Integrated Assessment Program Objective:
To carry out the Institute's mission of sustainability problem solving by using Integrated Assessment as a methodology for connecting academics, decision makers, and stakeholders.

Integrated Assessment PROGRAM

- Focuses on **PROBLEM SOLVING**
 - **Uses Integrated Assessment to...**
assemble and analyze environmental, social, and economic information to drive decision making
- Acts as a **CHANGE AGENT**
 - **Requires interdisciplinary faculty expertise to address real-world sustainability problems**
- **ENGAGES** academics, decision makers, and, stakeholders to affect change.



Technical Assessments

Project Overview

Stakeholder Input

Gather Data

Define the Issue, Identify Challenges

Offer Direction and Feedback

Conduct Analyses

Clarify the Issue (History, Causes and Consequences)

Provide Background Data

Evaluate Options

Identify and Evaluate Potential Solutions

Develop Goals

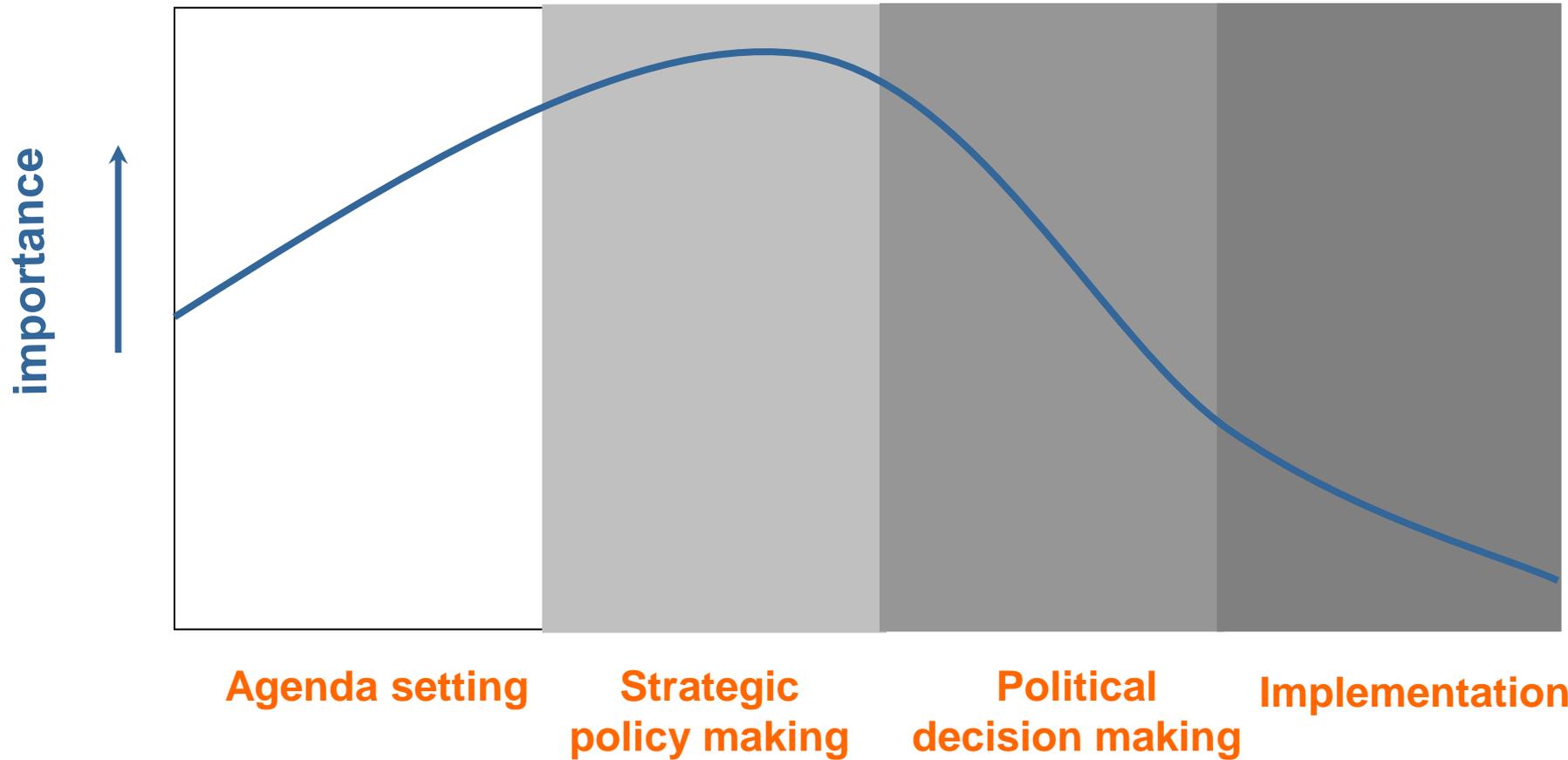
Develop New Resources

Develop Tools and Information to Guide Decisions

Prioritize Options

Policy Options

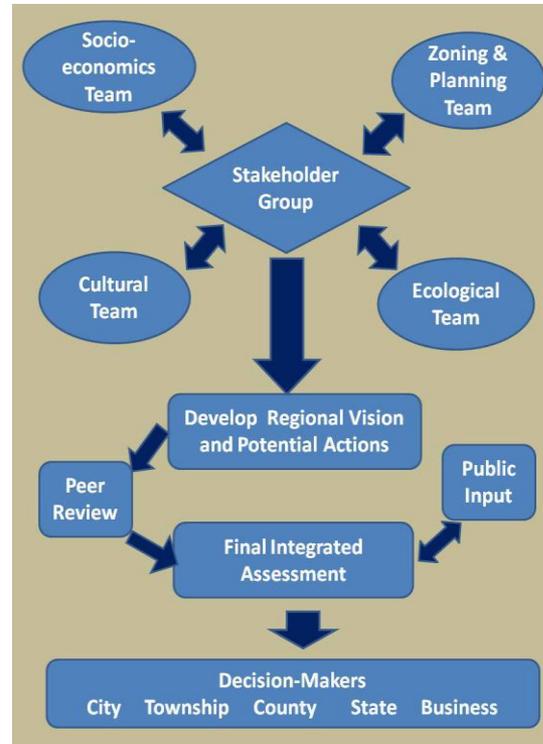
IMPORTANCE of INTEGRATED ASSESSMENT



Source: Jan Rotmans, "Introduction in Integrated Assessment," EU Advanced Summer Course in Integrated Assessment methodology, September 2003, Maastricht, The Netherlands.

IA BENEFITS

- Report and supporting data
- Modified perspectives
- New partnerships
- Change in process
- Leveraged resources



Lund, Katie, Keely Dinse, John Callewaert and Don Scavia (2011). "The Benefits of Using Integrated Assessment to Address Sustainability Challenges." *Journal of Environmental Studies and Science* 11 November.

IA PROGRAM SUMMARY

Topic	Geographic Focus	Partner	Timeline
Campus Sustainability	Campus	UM Office of Campus Sustainability	2010-2011
Global Health Equity and Sustainability	International	UM Center for Global Health	2011-2014
Detroit Sustainability Indicators	Regional	Data Driven Detroit	2011-2013
HOPE Village Initiative - Detroit	Local	Focus: HOPE	2011-2013
Great Lakes Cities Climate Adaptation	Regional	Great Lakes Regional Integrated Sciences and Assessments Center	2011-2014
Livable Communities	National	UM Transportation Research Institute	2012-2014
Hydraulic Fracturing	Regional	UM Risk Science Center Energy Institute Erb Institute	Emerging

Faculty and Students

CHANGE AGENT

Global Health



Detroit



Great Lakes



- 75 Faculty representing 15 Units
- >150 Students from 18 Units

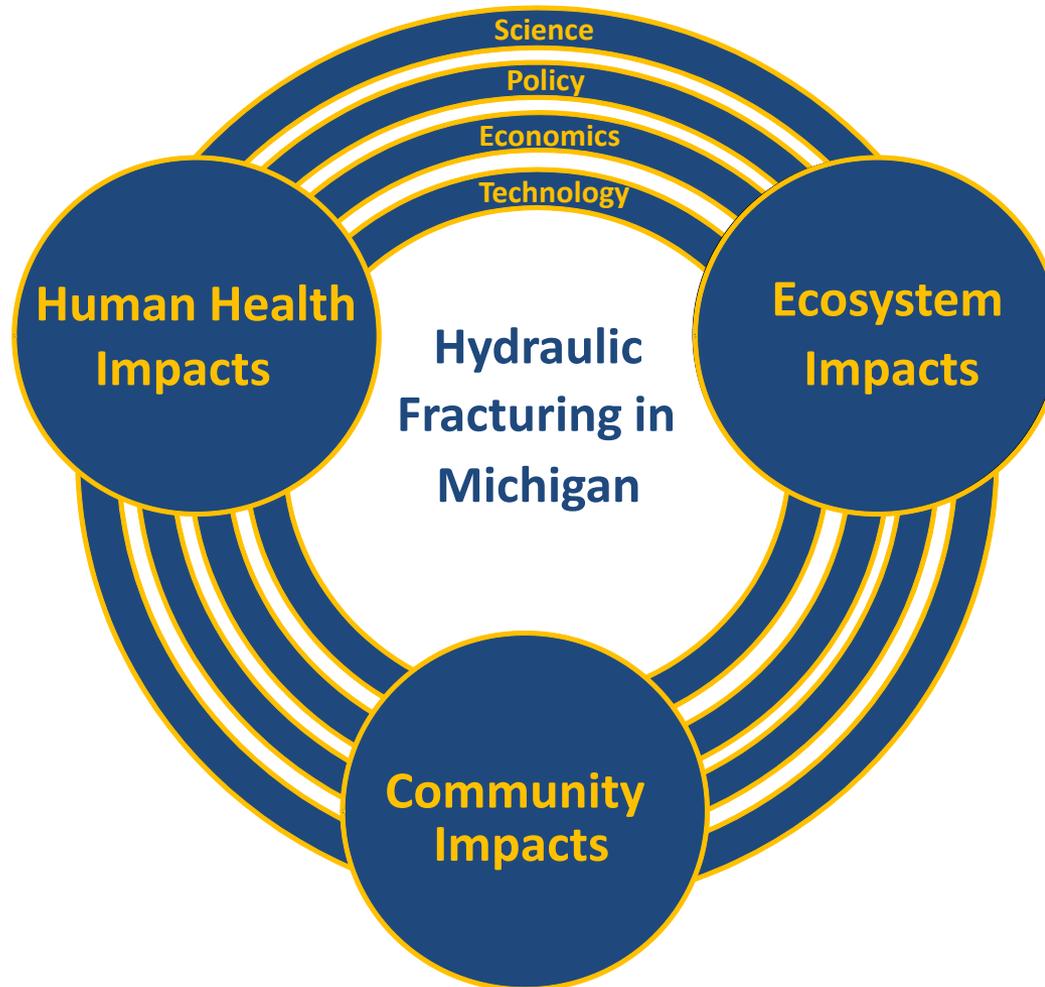
Campus



Livable Communities



Hydraulic Fracturing in Michigan



Hydraulic Fracturing in Michigan

- Project Focus:
 - Draw on key studies and regulatory approaches from across the country. Since hydraulic fracturing is thus far less contentious in Michigan, this project can be a platform to consider multiple stakeholder perspectives.
 - Acknowledge that hydraulic fracturing is likely to be part of Michigan's future while providing analysis to address concerns and determine what recommendations may be needed to improve the process.
 - Leverage and build upon U-M's existing relationships to facilitate successful partner and stakeholder engagement.

Hydraulic Fracturing in Michigan

- U-M Partners
 - Graham Sustainability Institute
 - Risk Science Center
 - Energy Institute
 - Erb Institute for Global Sustainable Enterprise

Hydraulic Fracturing in Michigan

- Steering Committee
 - Governor's Office
 - Michigan Department of Environmental Quality
 - Michigan Oil and Gas Association
 - Tip of the Mitt Watershed Council
 - Michigan Environmental Council
 - UM Partners

Hydraulic Fracturing in Michigan

- Timeline
 - Phase 1: Fall 2012-Winter 2013
 - Technical Reports on 7 key topics
 - Public Forum: Winter 2013
 - Phase 2: Spring 2013-Spring 2014
 - Identification of key strategies and policy options

Hydraulic Fracturing in Michigan

Phase 1 Technical Reports

Human Health	<i>School of Public Health</i>
Environment/Ecology	<i>School of Natural Resources and Environment, Department of Biology, Department of Earth & Environmental Sciences</i>
Economics	<i>Institute for Research on Labor, Employment, and the Economy</i>
Technology	<i>Energy Institute</i>
Social/Public Perception	<i>Erb Institute</i>
Policy/Law	<i>Law School</i>
Geology/Hydrodynamics	<i>Civil and Environmental Engineering</i>

Thank you!

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