

# LOGIC MODELS 101

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# OBJECTIVES

- Describe a logic model
- Understand the value of a logic model in a grant application
- Identify the key components of a logic model
- Examine examples of logic models
- Be able to develop a logic model

# LOGIC MODELS

- Developed in evaluation science
- Grounded in theory of change – does a program work??
- Core of planning and evaluation
- Provides a common framework

# LOGIC MODELS

- A ONE page summary of a program in words and graphics
- Describes the sequence of activities thought to bring about change
- Demonstrates how program activities are linked to anticipated program results

# LOGIC MODEL – SIMPLEST FORM



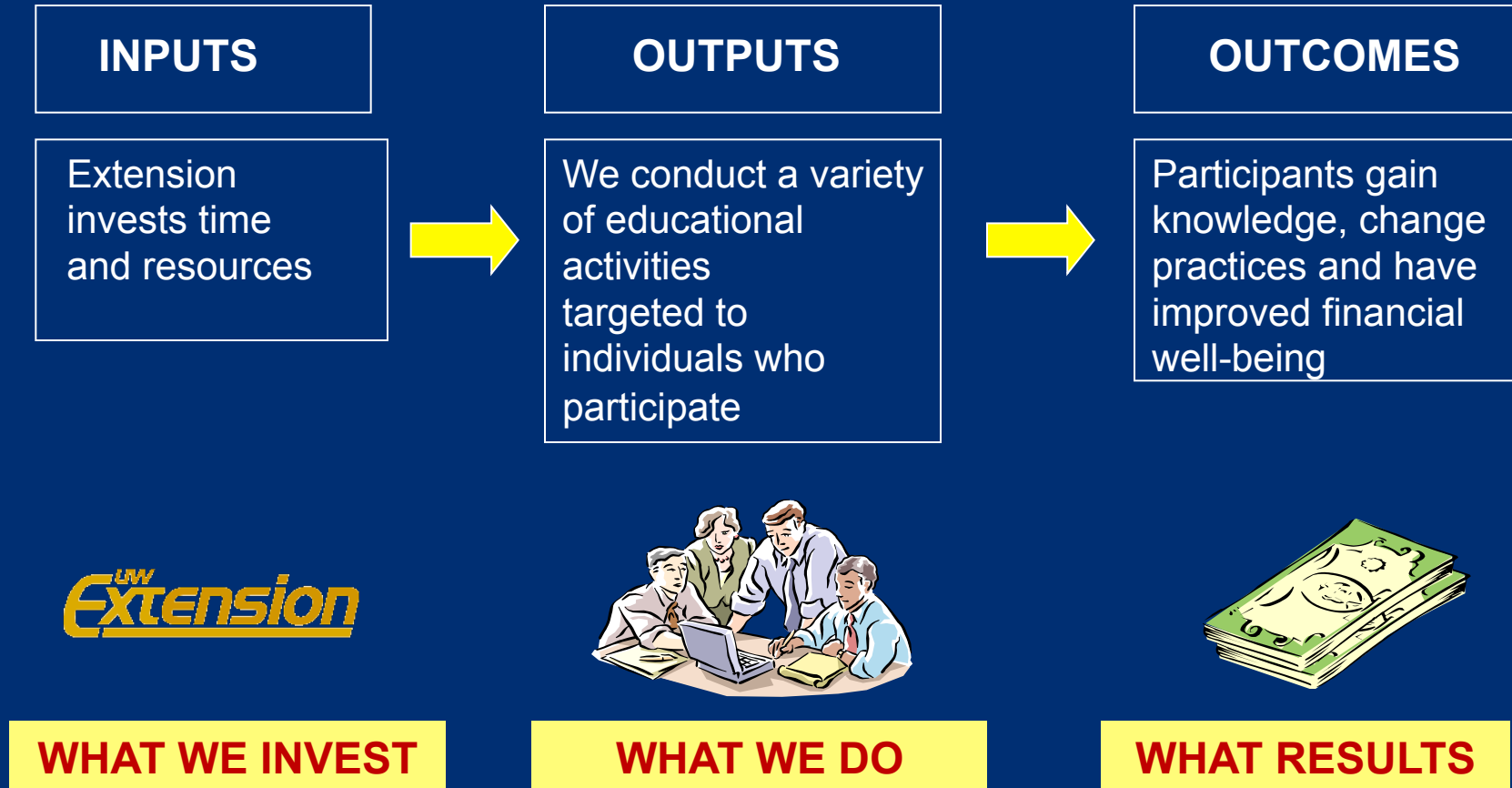
A series of IF-THEN relationships  
that explain your theory of change

# LOGIC MODELS – COMPONENTS

- **INPUTS:** resources, contributions, investments into program
- **OUTPUTS:** activities, services, events
- **OUTCOMES:** results or changes for individuals to systems
- *ASSUMPTIONS:* the beliefs we have about the program, underlying theories
- *EXTERNAL FACTORS:* the environment in which the program exists

## Example: Financial management program

**Situation:** Individuals with limited knowledge and skills in basic financial management are unable to meet their financial goals and manage money to meet their needs.



# LOGIC MODELS – OUTCOMES

## Shorter-Term Outcomes

- Achieved during program timeframe
- Within program control
- "expect to see"

## Intermediate Outcomes

- Achieved at the end / beyond program timeframe
- Follow shorter-term outcomes
- "want to see"

## Longer-Term Outcomes

- Achieved after program timeframe
- Outside direct program control
- "hope to see"



## Shorter-Term Outcomes

are the first steps toward social change, such as:

- ▶ New knowledge
- ▶ Changed opinion/values
- ▶ Increased skills
- ▶ Changed motivation
- ▶ Changed attitudes
- ▶ Changed aspirations



## Intermediate Outcomes

can't happen without short-term outcomes, and are often:

- ▶ Modified behavior
- ▶ Changed policies
- ▶ Changed practices
- ▶ Changed social action
- ▶ Changed decisions



## Longer-Term Outcomes

can't happen without short-term and intermediate outcomes, and may be:

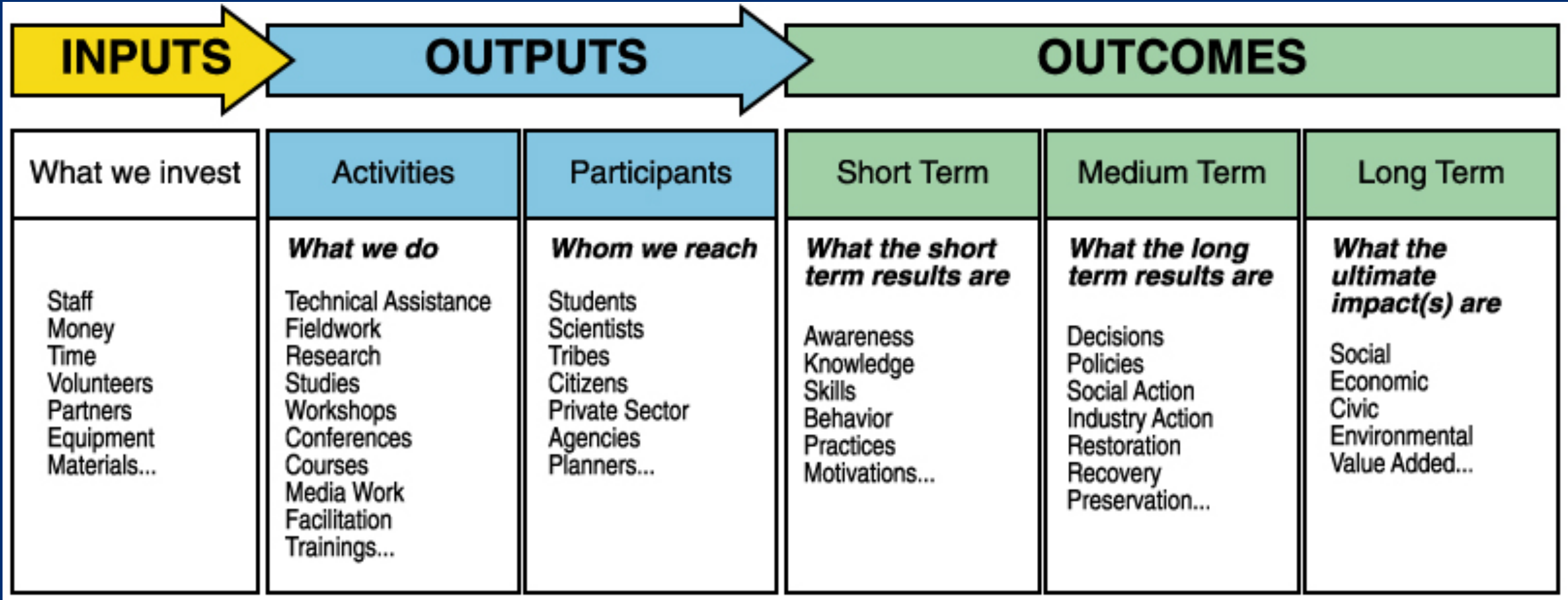
- ▶ Changed human condition
- ▶ Changed civic condition
- ▶ Changed economic condition
- ▶ Changed environmental condition



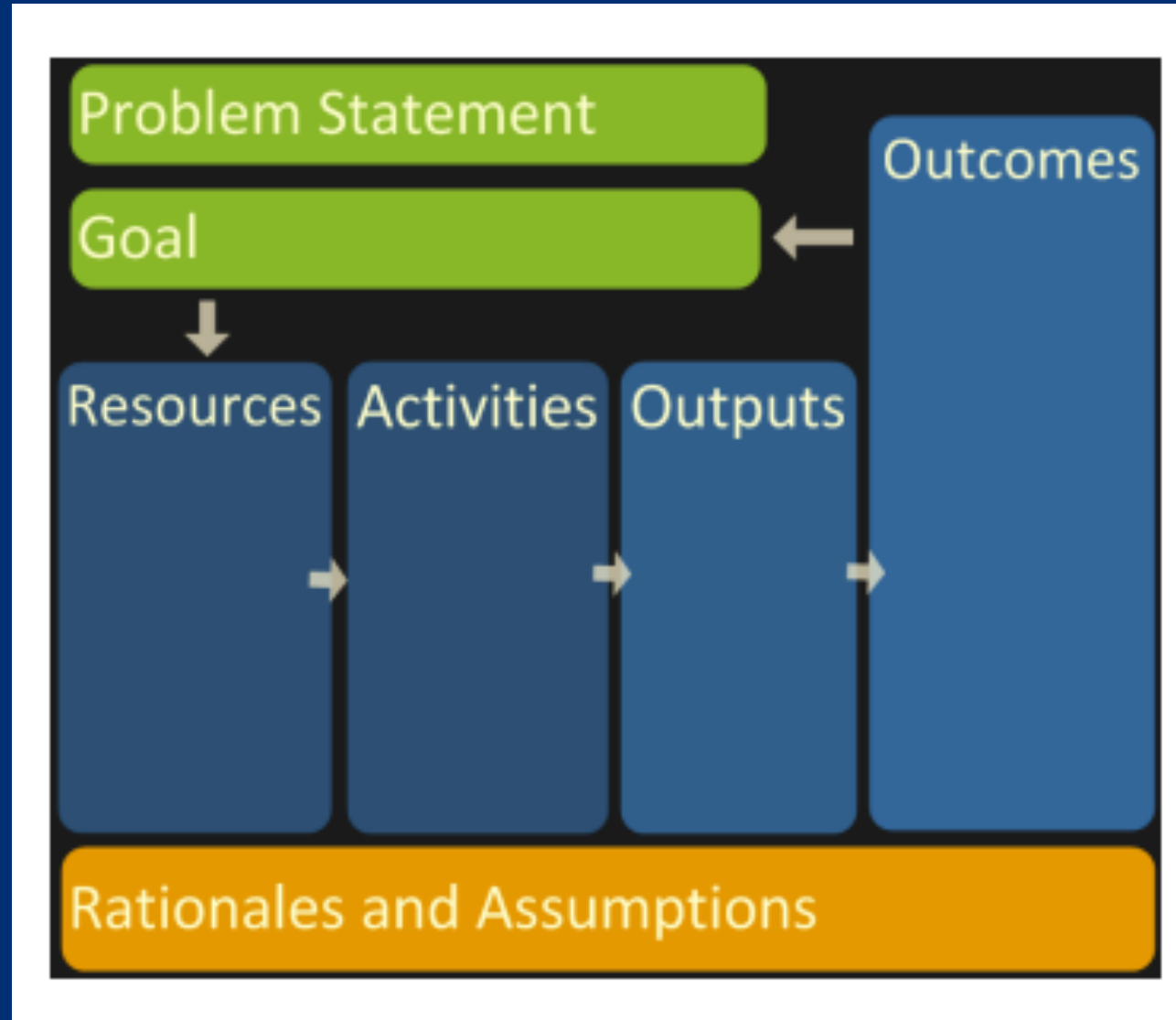
# LOGIC MODELS – FLEXIBLE TOOLS

- There is no “BEST” design
- Context-dependent for best choice of content to include and arrangement of that content
- Try several on for size

# LOGIC MODEL - EXAMPLE



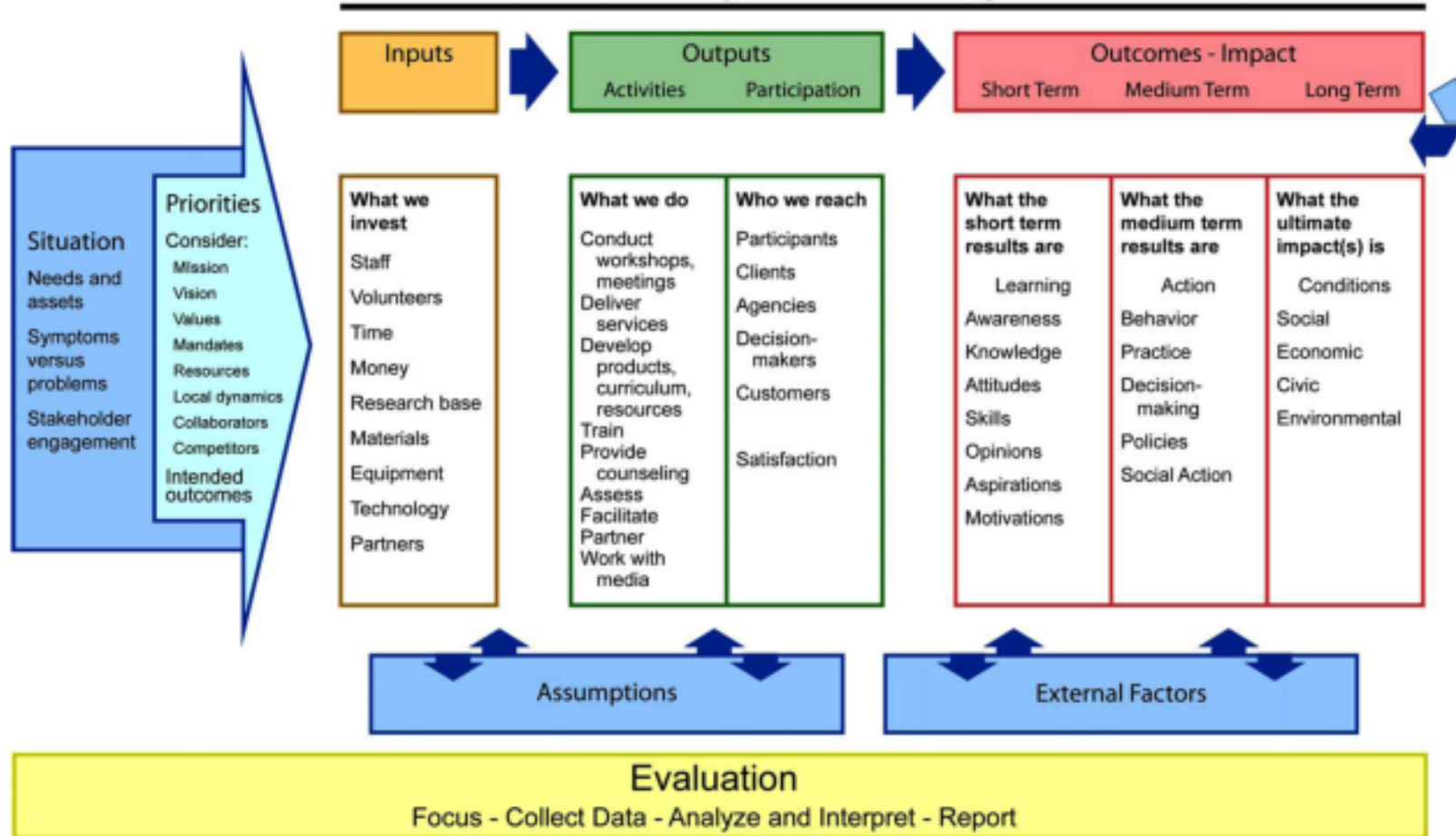
# LOGIC MODEL - EXAMPLE



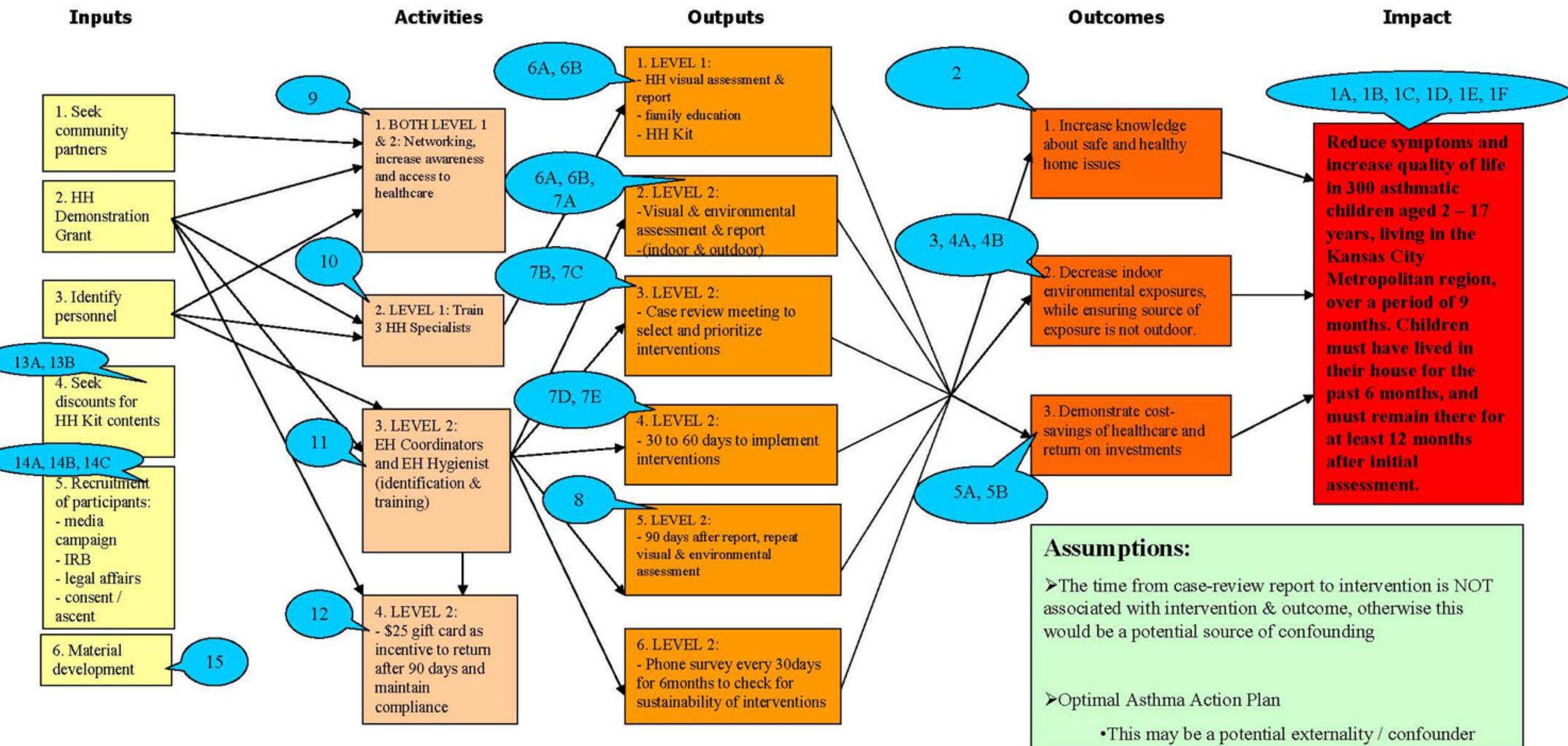
# PROGRAM DEVELOPMENT

Planning – Implementation – Evaluation

## Program Action - Logic Model



**Logic Model for Evaluation of the KCSHHP:**



# LOGIC MODELS

NSF – “like a blueprint”

*POWERFUL COMMUNICATION TOOL*

# LOGIC MODELS IN GRANT PROPOSALS

- Sometimes, but not always required
- If required, structure/required elements will be described in the RFP
- If not required, consider including one
- Why?
  - Gets investigative team / partners on same page
  - Easy way to communicate to a program officer what you are thinking to see if your proposal is a good fit with the funding agency
  - Makes grant writing much easier
  - Helps reviewers understand your proposed project



# LOGIC MODELS - TIPS

- Focus on cause and effect relationships
- Visually linking steps of your work – creating a path to solve the problem or answer the questions
- KEEP IT SIMPLE – Clarity over confusion!
  - Include only information directly related to theory of change
  - Detail is elsewhere in your proposal
  - Visually pleasing
    - don't go crazy with graphics,
    - align info horizontally when possible



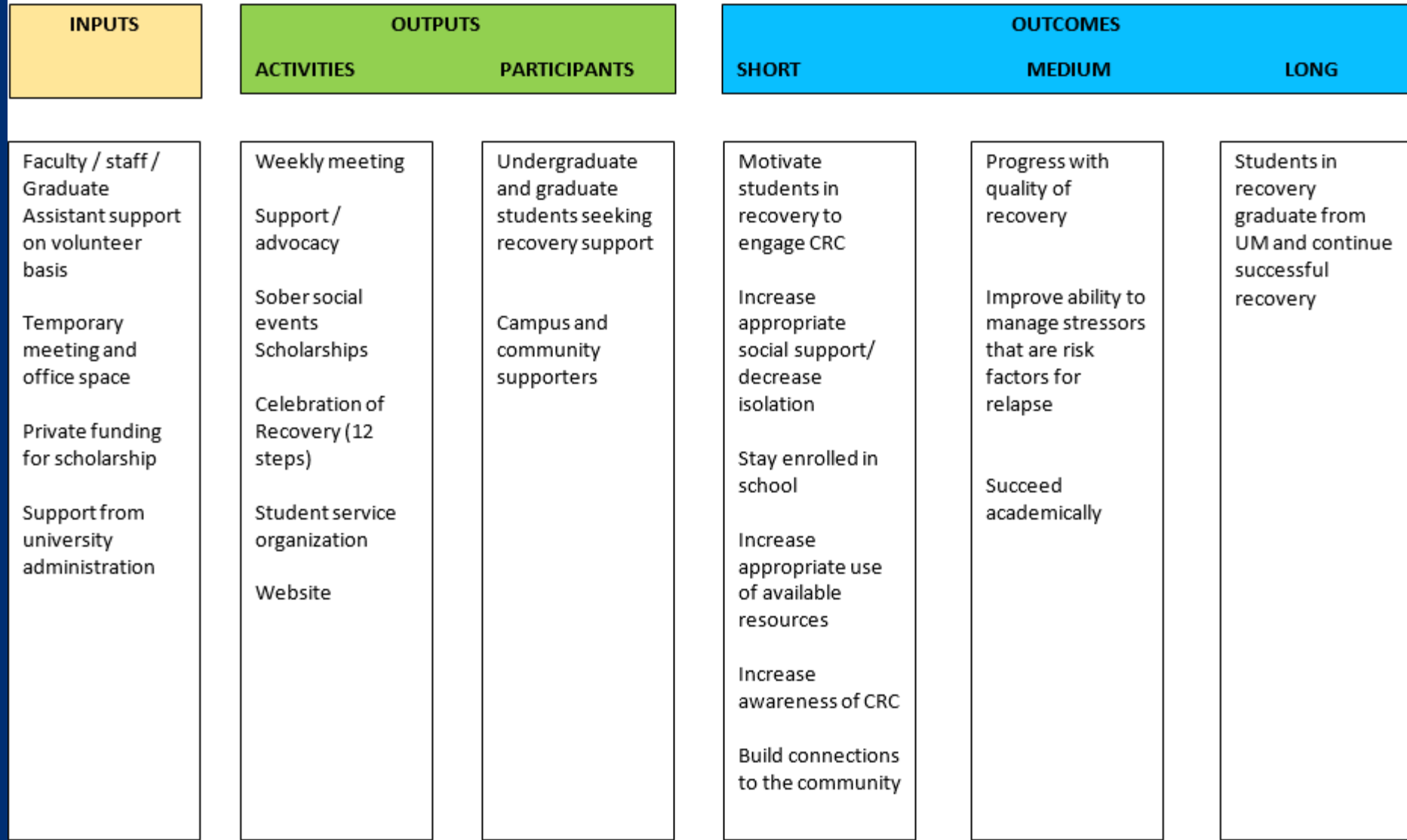
# LOGIC MODELS – WHERE TO BEGIN?

- Depends on how you think, how you are approaching your project, why you are creating the logic model
- IDEALLY:
  - Consider needs assessment / situational analysis
  - Fit with mission / vision / priorities / capability / theory

# LOGIC MODELS – STEP BY STEP GUIDE

- Step 1: Long-term outcomes
- Step 2: Contextual factors (assumptions and external factors)
- Step 3: Inputs
- Step 4: Activities
- Step 5: Outputs
- Step 6: Short-term outcomes

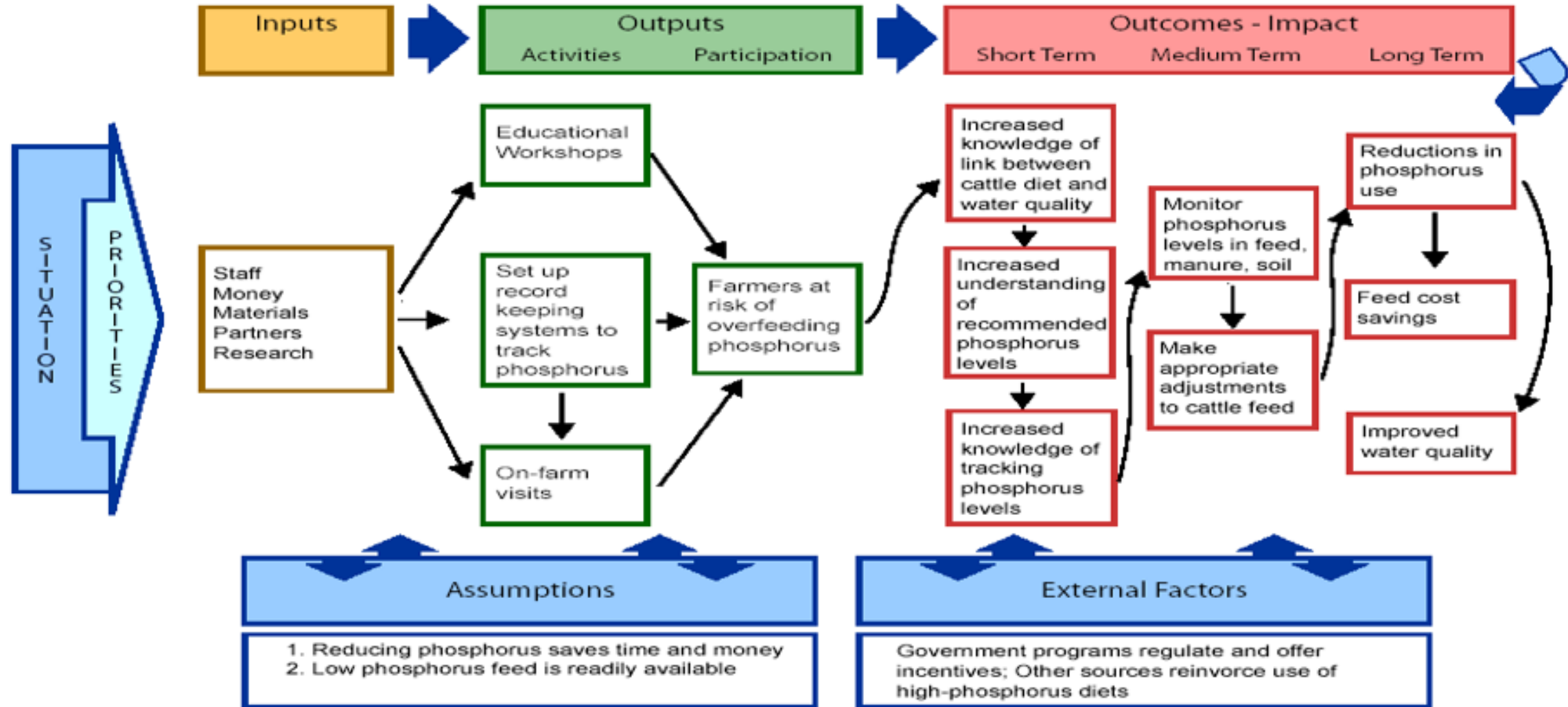
UNIVERSITY OF MISSISSIPPI  
 COLLEGIATE RECOVERY COMMUNITY  
 PROGRAM LOGIC MODEL



**Assumptions:** 1. Participants are receiving clinical recovery support (i.e., 12 step program participation) elsewhere; 2. The CRC is peer-driven (the students decide what they need)

**External Factors:** The University of Mississippi has a special responsibility related to alcohol and drug use due to campus culture.

# Example: Water quality



# Example: Statewide Tobacco Control: Smoke-free environments

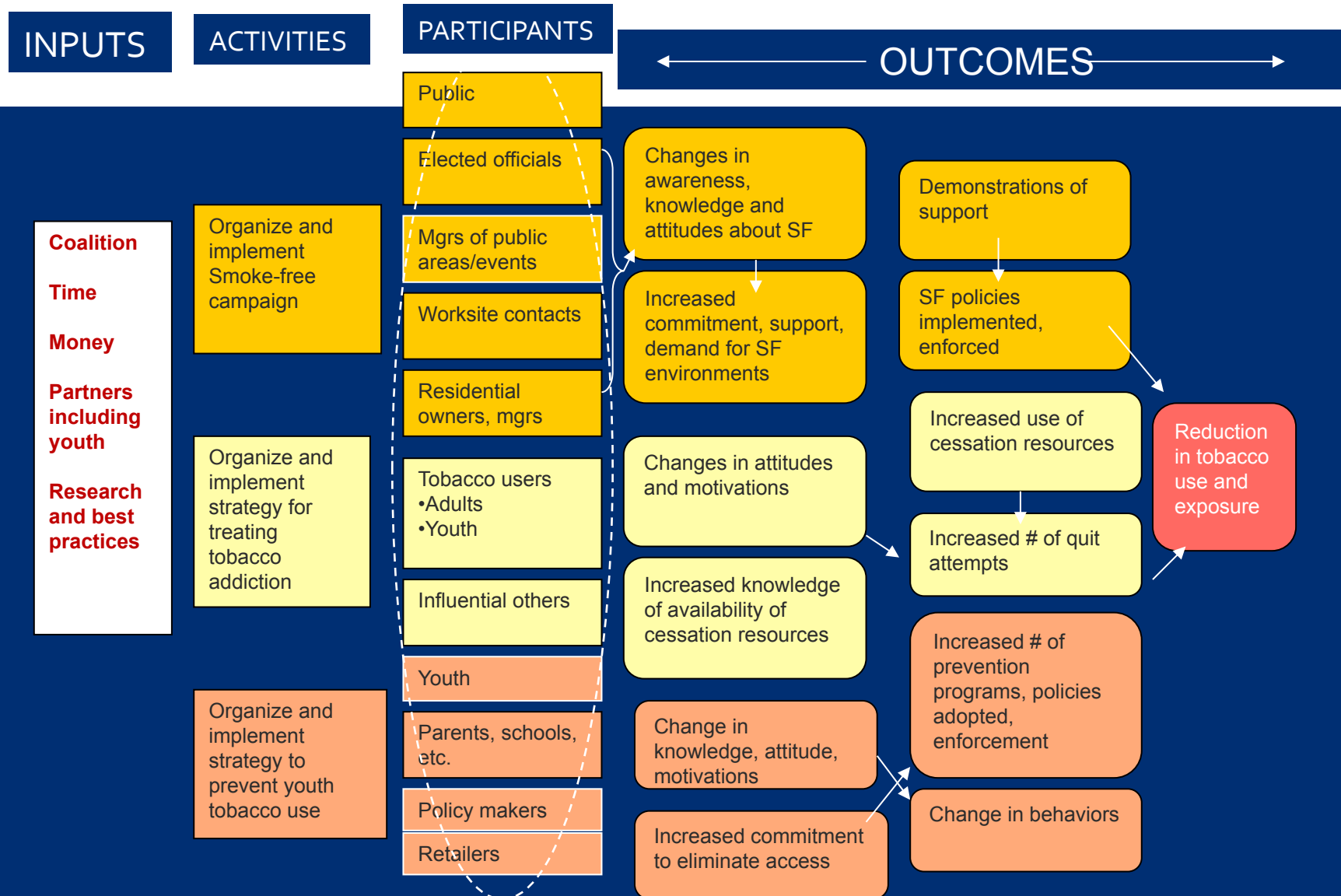


Figure 2. Program Logic Model

**PROBLEM:** The current academic training program model for graduate students does not reflect the range of career options that trainees may ultimately pursue.

**MISSISSIPPI BIOMEDICAL CAREER COMPASS Program Purpose:**

Develop a new model of graduate training that better prepares graduate students for the broad range of career opportunities in the biomedical workforce.

Rationales	Program Goals	Resources	Activities	Outputs	Short-Term/Intermediate	Long Term Outcomes
<ul style="list-style-type: none"> <li>• Only about one quarter of biomedical <u>Ph.D.s</u> work in tenure track faculty positions</li> <li>• Current paradigm only prepares students for academic tenure track careers</li> <li>• Career placement data is not widely available, preventing students from making informed decisions regarding enrollment and path through doctoral programs</li> <li>• The majority of graduates go on to alternative career paths within the broader biomedical sciences economy with little exposure to these options during training – transition is difficult</li> <li>• Faculty are experts in training students to do what they themselves do, often lacking awareness and knowledge of alternative career paths</li> <li>• Great societal benefit from having trained scientists contributing their knowledge and skills in a wide variety of settings to improve policy,</li> </ul>	<ul style="list-style-type: none"> <li>• Provide data on time to degree and career placement outcomes to facilitate informed application, enrollment, training decisions</li> <li>• Improve faculty awareness of, support for, and ability to facilitate alternative career tracks for students</li> <li>• Without lengthening training period, offer workshops &amp; courses that expose students to a wider range of career opportunities, facilitate appropriate skill-building in areas that would improve career success. Example areas:               <ul style="list-style-type: none"> <li>➢ Communications</li> <li>➢ Entrepreneurship</li> <li>➢ Policy</li> <li>➢ Program development</li> <li>➢ Fiscal management</li> <li>➢ Mentoring</li> <li>➢ Conflict management</li> <li>➢ Tech transfer</li> </ul> </li> <li>• Offer more in depth exposure to interested students via internships</li> <li>• Develop academic exit strategies for students who desire alternative career path. Masters in Interdisciplinary Studies</li> </ul>	<ul style="list-style-type: none"> <li>• Academic schedule that facilitates short-course opportunities that do not lengthen time to degree</li> <li>• Existing interdisciplinary, team-based integrative courses, programs</li> <li>• Faculty with demonstrated strong mentoring skills</li> <li>• Engaged and interested faculty, including many with experience and existing partnerships across the non-academic biomedical enterprise</li> <li>• Track record of facilitating student's successful transition to non-faculty careers upon graduation</li> <li>• Strong institutional support for program</li> <li>• UM Innovations in STEM Education Initiative</li> <li>• Blueprint Mississippi</li> <li>• <i>Will need to say something about external partners</i></li> </ul>	<ul style="list-style-type: none"> <li>• Engage stakeholders, advisory committee - what skills most valuable</li> <li>• Engage in planning period to develop programming</li> <li>• Track career placement of graduates</li> <li>• Faculty training to raise awareness, enhance program support, mentoring skills</li> <li>• CAREER COMPASS Boot Camp for incoming students; Retreat for ongoing students</li> <li>• Develop, implement cross disciplinary seminar series to develop working knowledge in skills/areas necessary for success in range of biomedical careers</li> <li>• Develop, implement internship program</li> <li>• Market Interdisciplinary Studies degree option</li> <li>• Conduct formative, process, outcome assessment and utilize results to adapt and improve programming</li> <li>• <i>Mentorship??</i></li> <li>• <i>Develop Handbook/ Mobile App guide for biomedical science leaders</i></li> </ul>	<ul style="list-style-type: none"> <li>• Data is available to both guide programming and inform students</li> <li>• Informed, supportive faculty mentors are available to students</li> <li>• Students begin academic training with an awareness of a wide range of career opportunities and understanding of potential need for alternative skills, academic programs that may support these career paths</li> <li>• Students have a yearly opportunity to participate in coursework to enhance knowledge, build skills for career success</li> <li>• Students who are interested complete internships to gain/ deepen practical experience/ knowledge</li> <li>• Potential new degree programs or degree tracks are considered and developed</li> <li>• Data to inform continued program refinement, improvement, dissemination is available</li> <li>• <i>Mentorship??</i></li> <li>• <i>Handbook/Guide/App</i></li> </ul>	<ul style="list-style-type: none"> <li>• Students make informed enrollment /academic program decisions</li> <li>• Students have working knowledge/experience with broader range of career paths and related skills</li> <li>• Students gain skills that will facilitate success in broader range of career paths</li> <li>• Through cross-disciplinary training students will gain an appreciation for the value of collaboration</li> <li>• Faculty improve awareness and knowledge of broader range of career pathways for biomedical doctoral students</li> <li>• Novel exit strategy academic track</li> <li>• Model program is developed and evaluation facilitates program refinement</li> </ul>	<ul style="list-style-type: none"> <li>• Students successfully transition to careers in the biomedical research workforce</li> <li>• Faculty are aware of and willing advocates for a diverse range of academic and career paths for biomedical doctoral students</li> <li>• A new more holistic training model for graduate training in biomedical research is available and adaptable for implementation at a wide variety of institutions</li> <li>• Society benefits from improved science policy, industry and government research, science communication, more highly skilled individuals infused throughout the economy</li> </ul>



# Applied Research Grant on Pre-Spawning Salmon Mortality in Urban Creeks

## Assumptions (Logic for the Project):

There is relationship between pre-spawning salmon mortality (PSM), watershed characteristics, and land use.

A scientific understanding of the causes can lead to strategies that reduce the mortality rate.

Understanding PSM can lead to policy decisions that will improve watershed health, land use and human health.

Strong partnerships coupled with research, communication and coordination are necessary to reduce pre-spawning salmon mortality.

INPUTS (DESCRIBE)	ACTIVITIES (DESCRIBE)	OUTPUTS (DELIVERABLES) (QUANTIFY)	CUSTOMERS /TARGET AUDIENCE /BENEFICIARIES	SHORT TERM OUTCOMES (MEASURABLE)	MEDIUM TERM OUTCOMES (MEASURED IF POSSIBLE)	LONG TERM OUTCOMES (PROJECTED)	EPA STRATEGIC OBJECTIVES SUPPORTED
EPA Grant \$\$ Staff Time Materials In-kind Contributions Volunteers	Create project partnerships. Field surveys. Develop GIS. Develop poll information request form Survey local governments and DFW. Document PSM observations.	- GIS-based land-use and watershed characteristics analyses performed. (Yes or No & Quality) - Questionnaire mailed and followed with phone call & compile results (# completed, # of communities reached) - Field surveys performed in 7 Bellingham, Seattle, and Olympia watersheds & data entered. (# of streams surveyed, # of stream miles, # of fish examined) -Final report drafted. (Yes or No & Quality) -User friendly presentations developed by WA Trout (Yes or No & Quality) <b>Scientific/Data Track:</b> Presentation & Discussion with NOAA Scientists <b>Policy Track:</b> -----Presentations to 6 County Councils <b>Public Awareness Track:</b> Meet with Environmental groups and reporters.	<b>Agency Science Track:</b> Scientists at: USFWS, NMFS, and EPA. WDFW. County & City Planners  <b>Community Track:</b> <b>Policy Track:</b> County & City Officials Environmental Groups Reporters  <b>Public Awareness Track:</b> Citizens living by selected watersheds. Environmental Groups Reporters Developers, tribes and industries likely to impact selected streams.	<b>Agency Science Track:</b> NOAA Scientists are informed about study. (Scientists confirm value of study through letters of appreciation, references to study in other publications and presentations.)  <b>Community Track:</b> <b>Policy Track:</b> Politicians are aware of the problem & scope of the crisis. (# of public forums & meetings with PSM on agenda. # of unsolicited inquiries from public officials.)  <b>Public Awareness Track:</b> Public is aware of the problem & scope of the crisis. Media coverage. (Copies of newsletters & articles referencing the results of the study, including copies of same.)  <b>ALL:</b> Study results and database available to everyone. (# of copies of report distributed to each target. # of public presentations. # of WEB hits on Database. # of unsolicited inquiries.)	<b>Agency Science Track:</b> NOAA Scientists use study results to explain mechanism for mortality and identify appropriate solutions.  <b>Community Track:</b> <b>Policy Track:</b> Politicians pass land use regulations to lessen PSM.  <b>Public Awareness Track:</b> Public is informed of behaviors that contribute to PSM & alternative practices. Public supports policy makers who are trying to solve the problem.  <b>ALL:</b> Study results and database available to everyone. (# of copies of report distributed. # of presentations. # of WEB hits on Database.)  NEXT GRANT???	<b>Agency Science Track:</b> Remediation techniques are evaluated in relationship to baseline data to validate and improve best management practices.  Trends in PSM can document improvements over time.  <b>Community Track:</b> <b>Policy Track:</b> Effective remediation techniques are adopted throughout the watersheds. Improved land use patterns.  <b>Public Awareness Track:</b> Public supports policies & behavior changes become widespread  <b>ALL:</b> Reduced PSM and Improved water quality.  GIS information available for other uses and applications.  NEXT GRANT???	<b>Agency Science Track:</b> <b>Goal 2 Clean Water</b> Objective 2.2.1 Improve Water Quality on a Watershed Basis.   <b>Community Track:</b> <b>Goal 4 Healthy Communities and Ecosystems,</b> Objective 4.2.1 Sustain Community Health

Thick Line = Limit of Direct Grant Accountability

# Leadership in Energy and Environmental Design (LEED) Training & Certification

## Assumptions:

1. **LEED** (Leadership in Energy and Environmental Design) is a nationally recognized, non-regulatory approach that has been shown to result in quantifiable low impact development.
2. **LEED** training and certification for contractors, developers, architects, and other professionals will lead to the use of low impact development practices and construction in the county.
3. Low Impact Development will benefit both the environment and the local economy.

Inputs	Activities	Outputs	Customers	Short Term Outcomes	Medium Term Outcomes	Long Term Outcomes	Strategic Objectives
<ul style="list-style-type: none"> <li>- EPA Grant</li> <li>- Staff time</li> <li>- In-Kind Contributions</li> <li>- Volunteer Time</li> </ul>	<ul style="list-style-type: none"> <li>- Develop LEED* Professional Reference Guide for area professionals</li> <li>- Develop LEED practice exams</li> <li>- Develop "Green Building Materials Sourcing Guide for professionals."</li> <li>- Design and conduct LEED training workshop series.</li> </ul>	<p>Target: Conduct two LEED certification workshops (three 4 hour sessions each)</p> <p>Target: 60 professionals complete training</p> <p>Target: Professional Guide, Practice Exams, and Green Building Sourcing Material guide published and available electronically</p>	<p><b>Primary targets:</b> Contractors, Developers, Architects, Engineers.</p> <p><b>Secondary targets:</b> Realtors, Elected Officials, Public Works and Planning Professionals, Concerned Citizens.</p>	<p>- Increased LEED capacity and understanding</p> <p><b>Primary targets:</b> - Professionals receive LEED accreditation, increasing the capacity of the area to produce low impact housing and development Target: 30 professionals</p> <p><b>Secondary targets:</b> customers attend workshops but do not seek accreditation. Target 20</p>	<ul style="list-style-type: none"> <li>- Increase in specifications and orders for green building materials documented</li> <li>- Proposed waterfront re-development project meets LEEDS platinum standard.</li> </ul>	<p>LEED certified construction becomes widespread and is shown to be cost effective and affordable</p> <p>Negative environmental impacts of growth are avoided.</p> <p>Quality of life improves</p>	<p>Area becomes a replicable model for visionary planning and development.</p>

\* Hotlink to LEED: <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

Thick Line = Limit of Direct Grant Accountability



**Figure 1. UM NRT Program Logic Model**

**Context:** *There are many national challenges that would benefit from collaborative training to prepare STEM graduate students to effectively engage in interdisciplinary team-based research that is culturally sensitive and informed by community needs.*

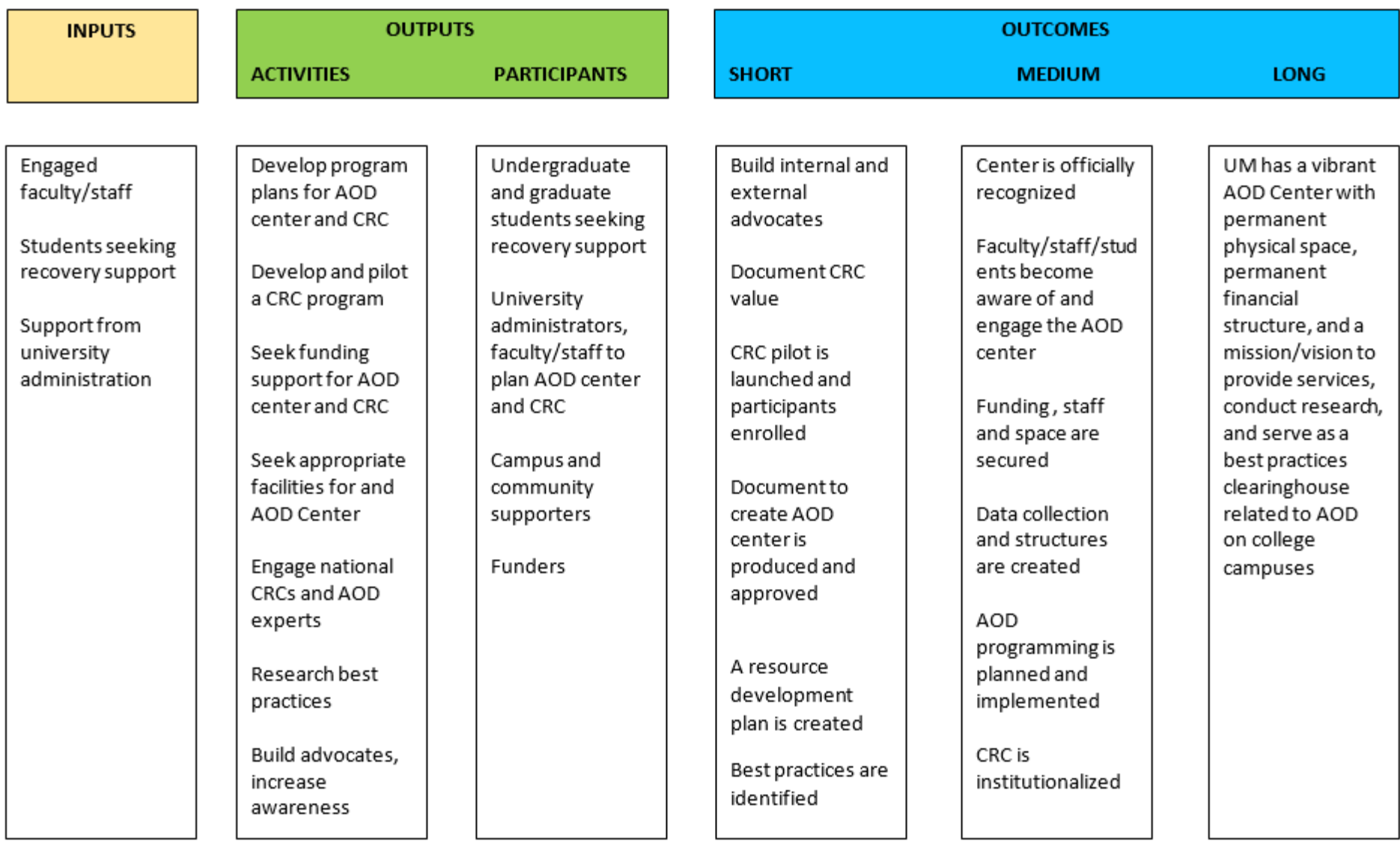
**NRT grant proposal:** Transform how we train STEM students and catalyze multicultural research in disaster sciences to reduce disparities in readiness and response.

Rationale	Goals	Strategies	Outcomes	Broader Impacts
<p>STEM graduate students are prepared for academic research careers; they are unaware of, and inadequately prepared for, non-academic research careers</p> <p>STEM graduate students lack:</p> <ul style="list-style-type: none"> <li>- ability to effectively work in interdisciplinary teams</li> <li>- preparation to work with communities because students lack cultural humility and cultural competencies</li> <li>- communication skills beyond traditional academic communication</li> <li>- training to be aware of political and policy issues related to their research area</li> </ul> <p>Disaster readiness and response research has not adequately addressed disparities – needs social scientists trained in an interdisciplinary approach</p> <p>Communities often feel exploited and abandoned by researchers</p> <p>Strong program evaluation can improve and prepare NRT model for dissemination</p>	<p>Catalyze research-based solutions to disparities in disaster readiness and response</p> <p>Develop a new STEM graduate model that builds the knowledge, skills and abilities to:</p> <ul style="list-style-type: none"> <li>• engage community stakeholders</li> <li>• develop skill in culturally-responsive research</li> <li>• engage in a team science approach that integrates and utilizes diverse research methods</li> <li>• address the needs of communities</li> <li>• effectively communicate and collaborate to solve problems in changing multicultural and environmental contexts</li> </ul> <p>Engage in evaluation to improve/refine NRT model</p> <p>Communicate and disseminate NRT model and outcomes to facilitate replicability</p>	<p>Engage stakeholders, advisory committees</p> <p>Welcome Lab Orientation &amp; Annual Retreat to engage trainees &amp; faculty in program goals</p> <p>Implement interdisciplinary certificate to develop working knowledge in skills/areas key to a range of research-related careers</p> <p>Implement Interdisciplinary Research Teams of experienced faculty mentors and trainees to engage in culturally sensitive, community-based research</p> <p>Engage trainees in field experiences to gain real-world experience, conduct field research</p> <p>Hold Roundtables to enhance collaboration, build communication skills, mentor trainees</p> <p>Conduct formative, process, and outcome evaluations and utilize results to adapt and improve NRT program</p>	<p>Students have working knowledge, skills &amp; experience associated with a broad range of research and research-related careers</p> <p>Students gain skills in, and appreciation for, collaborative, interdisciplinary work, culturally sensitive research, interdisciplinary research methods, communication and dissemination, and political and policy implications</p> <p>Students understand impact of inequalities and its impact on disaster readiness and response</p> <p>Community-responsive research investigating issues related to disparities in disaster readiness and response</p> <p>Theses/dissertations and academic/technical reports of results</p> <p>Broader communication and dissemination of research results and implications</p> <p>Model graduate program with evaluation results demonstrating effectiveness</p>	<p>A diverse pool of students successfully transition to careers in the research and research-related workforce</p> <p>A new more holistic training model for graduate training in research is available and adaptable for implementation at a wide variety of institutions</p> <p>Research results facilitate the reduction of disparities in disaster readiness and response</p> <p>Communities benefit through direct relationships between researcher and community members</p> <p>Society benefits from improved science policy, industry and government research, science communication, more highly skilled individuals infused throughout the economy</p>

# LOGIC MODELS – WHERE TO BEGIN?

- THEORY APPROACH
- OUTCOMES APPROACH
- ACTIVITIES APPROACH

**UNIVERSITY OF MISSISSIPPI  
Creation of the AOD Center  
PROGRAM LOGIC MODEL**



**Assumptions:** 1. CRCs enhance student success; 2. A CRC can be a viable service at UM (may serve as a unique recruiting tool)

**External Factors:** The University of Mississippi has a special responsibility related to alcohol and drug use due to campus culture.