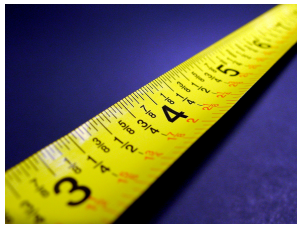
College of Agriculture and Life Sciences
Cooperative Extension
The University of Arizona

Arizona Pest Management Center

Getting Started with IPM Evaluation Planning: *The Logic Model & More*



Western IPM Center

Dr. Al Fournier

March 27 2015, 8th International IPM Symposium

NATIONAL IPM ROADMAP GOALS

Desired Long-term Outcomes* of IPM:

- Economic benefits
- Reductions in potential risks to human health
- Reductions in potential risks to the environment

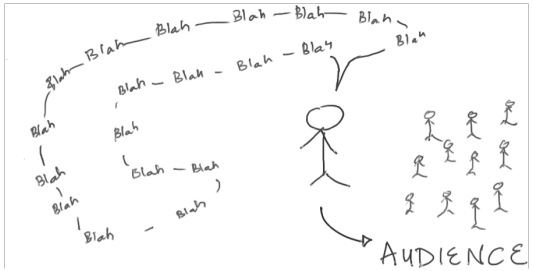
*= "Changes in condition"

How do you get there from here?

Outline

- IPM Grants: evaluation, Logic Models & reporting
- IPM & Evaluation: Its all about change!
- Logic Model: a tool for program planning
  - Basics and terminology
  - How to develop a logic model
  - Outcomes versus impacts
  - Projects versus programs
- Evaluation planning in 3 simple steps

Audience Participation



USDA United States Department of Agriculture | National Institute of Food and Agriculture

Evaluation: A Key to Success

"The EIPM program is not formula anymore, but reporting concerns are the same across the system. **If you want to be funded in the future, report well on your present funding**, especially if you are applying back to the same program. Reporting is a way to assess the value and accountability of the work a grantee completes."

-- Marty Draper, National IPM Program Leader
from NIFA Webinar on writing impacts, 2013

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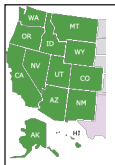
WIPM Center Grants 2014

"All proposals should identify the evaluation objectives and associated indicators [data] to be collected. All proposals should describe the specific methods that will be used to evaluate the project outcomes."

Modified from wording in the old RIPM program



Example: Western Region IPM Competitive Grants (RIPM) 2011

"Applications must provide detailed plans for evaluation of the project….

…such as logic models or other *established methods*."

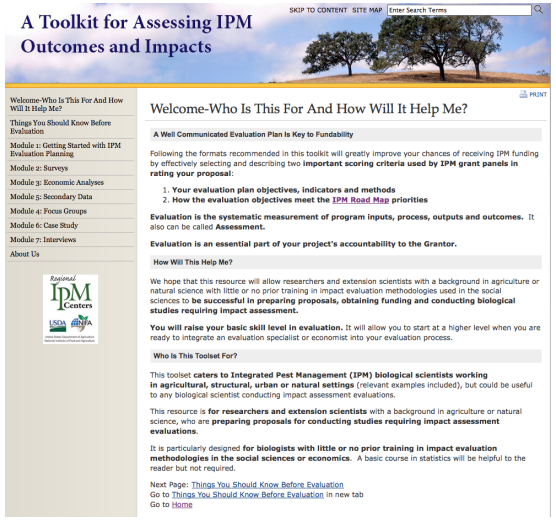
NIFA FY 2015 Crop Protection & Pest Management (CPPM) RFA

- Mentions "Logic Model" 31 times
- This grant program has its own Logic Model
- <u>Requires</u> "project-specific logic models"
- "Refer to your logic model in your project description, evaluation plans, and elsewhere, as applicable."
- Link project L.M. to CPPM L.M.

Western IPM Center WIPM Center Grants 2014

"the *Toolkit for Assessing IPM Outcomes and Impacts* …guidance for establishing an evaluation plan"

http://ipmimpact.ucanr.edu/



http://ipmimpact.ucanr.edu/

IPM is about Change (and people)

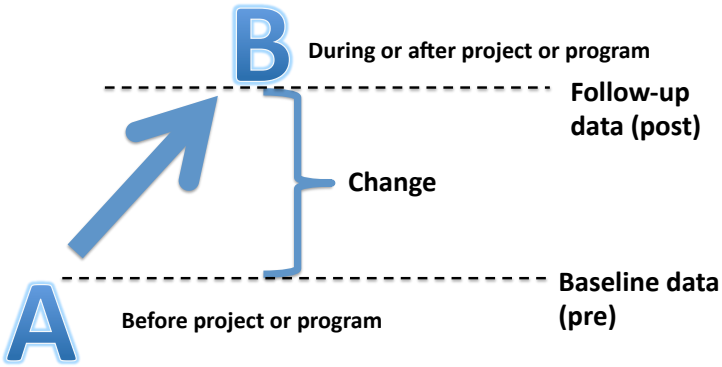
Levels of Change

Outcome Levels of Logic Model

Short Term → Medium Term → Long Term

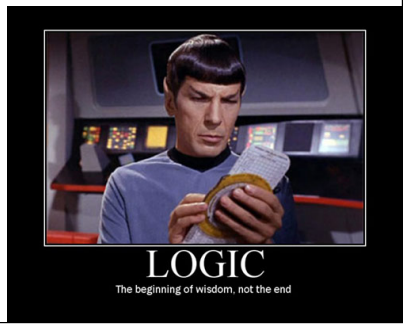
Learning	Action	"Impact"
awareness created	behavior changed	health impact
knowledge gained	practice adopted	economic impact
attitudes changed	decisions made	environmental impact
skills developed	policies changed or adopted	societal impact
aspirations sparked	social action taken	
People: What they learn and do		Conditions

Evaluation is about measuring change



The Logic Model

- A tool for program planning and assessment



Leonard Nemoy, 1931 - 2015

Situation: Why project is needed

LOGIC MODEL for PROGRAM DEVELOPMENT and ASSESSMENT

SITUATION

- Real world need, confirmed by stakeholders
- Pest situation
- Value of crop
- Economic losses
- Impact on environment, pesticide use, beneficials

We are generally good at this sort of "justification" stuff

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

S I T U A T I O N

"Begin with the end in mind."
- Steven Covey

Outcomes and Impact

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

S I T U A T I O N

OUTCOMES – IMPACT	
---People---	---World---
What the short term results are	*What the medium term results are*	*What the ultimate impact(s) is*
Learning	Action	Comprehensive Achievements
Awareness Knowledge Attitudes Skills Opinions Aspirations Motivations	Behavior Practice Decisions Policies Social action	Social Economic Civic Environmental

What is Learned

What is Done

What is Changed

Outputs and Inputs

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

S I T U A T I O N

OUTPUTS	OUTCOMES – IMPACT		
Participation	Short	Medium	Long Term
Who we reach	*What the short term results are*	*What the medium term results are*	*What the ultimate impact(s) is*
Participants Customers Citizens	Learning	Action	Comprehensive Achievements
	Awareness Knowledge Attitudes Skills Opinions Aspirations Motivations	Behavior Practice Decisions Policies Social action	Social Economic Civic Environmental
Reactions			

Outputs and Inputs

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

S I T U A T I O N

OUTPUTS		OUTCOMES – IMPACT		
Activities	Participation	Short	Medium	Long Term
What we do	*Who we reach*	*What the short term results are*	*What the medium term results are*	*What the ultimate impact(s) is*
Workshops Meetings Counseling Facilitation Assessments Product dev. Media work Recruitment Training	Participants Customers Citizens	Learning	Action	Comprehensive Achievements
		Awareness Knowledge Attitudes Skills Opinions Aspirations Motivations	Behavior Practice Decisions Policies Social action	Social Economic Civic Environmental
	Reactions			

Outputs and Inputs

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

SITUATION	INPUTS	OUTPUTS		OUTCOMES – IMPACT		
		Activities	Participation	Short	Medium	Long Term
	What we invest	*What we do*	*Who we reach*	*What the short term results are*	*What the medium term results are*	*What the ultimate impact(s) is*
	Staff Volunteers Time Money Materials Equipment Technology Partners	Workshops Meetings Counseling Facilitation Assessments Product dev. Media work Recruitment Training	Participants Customers Citizens *Reactions*	Learning Awareness Knowledge Attitudes Skills Opinions Aspirations Motivations	Action Behavior Practice Decisions Policies Social action	Comprehensive Achievements Social Economic Civic Environmental

How we achieve outcomes | **What we evaluate**

USDA United States Department of Agriculture | National Institute of Food and Agriculture

Outcomes versus Outputs

"Often when I read your CRIS reports I get to the 'Impacts' section and I read more about your activities and the programs you may have conducted, complete with how many attended the meeting. I would challenge you to rethink what an impact is. Think about outcomes. **Think about the, "So what?" question**."

-- Marty Draper, National IPM Program Leader
from NIFA Webinar on writing impacts, 2013

Outcomes versus Outputs

Outputs	Outcomes
• What I **put** out there	• What **comes** of it

Outcomes versus Impacts

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

SITUATION	OUTCOMES – IMPACT		
	---People---		---World---
	What the short term results are	*What the medium term results are*	*What the ultimate impact(s) is*
	Learning Awareness Knowledge Attitudes Skills Opinions Aspirations Motivations	Action Behavior Practice Decisions Policies Social action	Comprehensive Achievements Social Economic Civic Environmental

What is Learned | **What is Done** | **What is Changed**

Outcomes versus Impacts

- Short term (1-2 years)
- Increase awareness
- Increase knowledge
- Change attitudes
- Apply knowledge
- Adopt a practice
- Adopt a policy
- Result of project

- Long term (3 years +)
- Result of short term outcomes "in the world"
- Increase profits
- Improve health
- Reduce pollution
- Result of program

Which is Impact?

a. Growers adopted practices to reduce irrigation while maintaining current yields

b. Increased parent awareness of cyber bullying

c. Reduced absentee rates in schools that adopted IPM programs

Which is Impact?

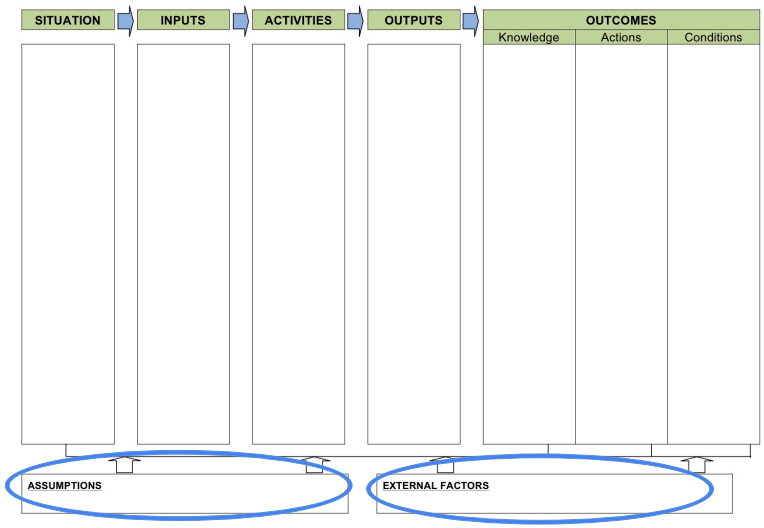
a. Growers adopted practices to reduce irrigation while maintaining current yields

b. Increased parent awareness of cyber bullying

c. Reduced absentee rates in schools that adopted IPM programs

A bit more to it… (NIFA template)

CSREES LOGIC MODEL Worksheet (Table format)



"Logic" is about connecting the boxes

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

SITUATION	INPUTS	OUTPUTS		OUTCOMES – IMPACT		
		Activities	Participation	Short	Medium	Long Term
	What we invest	*What we do*	*Who we reach*	*What the short term results are*	*What the medium term results are*	*What the ultimate impact(s) is*
	Staff Volunteers Time Money Materials Equipment Technology Partners	Workshops Meetings Counseling Facilitation Assessments Product dev. Media work Recruitment Training	Participants Customers Citizens *Reactions*	Learning Awareness Knowledge Attitudes Skills Opinions Aspirations Motivations	Action Behavior Practice Decisions Policies Social action	Comprehensive Achievements Social Economic Civic Environmental

How we achieve outcomes | **What we evaluate**

Connecting the Boxes

- **A good logic model demonstrates a clear linkage between the Situation, Participants, Outputs and Outcomes**. In other words, if the Outputs are delivered to the identified target audience, there is a good probability of addressing the identified needs and achieving the desired Outcomes.
- **Documenting to what degree outcomes have been achieved is the purpose of evaluation**

NATIONAL IPM ROADMAP GOALS

Desired <u>Long-term Outcomes*</u> of IPM:

- **Economic benefits**
- **Reductions in potential risks to human health**
- **Reductions in potential risks to the environment**

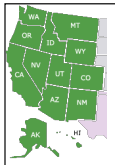
***= "Impacts"**

Will you measure these in every IPM project?

Projects versus Programs

Program	Project
• Longer term (career)	• Shorter term
• Broad but defined boundaries	• Consistent with program goals
• May have multiple audiences	• Stakeholder driven
• Addresses a series of problems within broad context	• May have multiple audiences
• Leads to outcomes & impacts	• Addresses specific problem(s)
	• Leads to outcomes

Evaluation Planning in 3 Steps



Example: Regional IPM Grants

"Applications must provide detailed plans for evaluation…. The evaluation plan should include specific evaluation objectives and measurement indicators (e.g., adoption rate, number of acres impacted, pesticide use, risk reduction, profitability) that will be used to measure impacts and outcomes resulting from the project. Evaluation plans should...describe the methodology that will be used."

Evaluation Planning

1. **Evaluation Objective:**
   - What change do you want to document?
2. **Measurement Indicator:**
   - What data will you use to document change? What will you measure?
3. **Methodology:**
   - How will you collect the data? How will you analyze the data?

Evaluation Planning Worksheet

Evaluation Plan (WRIPM grant)

1. **Objective 1:** To measure changes in pest manager knowledge of natural enemies (I.D.) & their role in whitefly management.
2. **Measurement Indicator:** Ability to identify (a) natural enemies and (b) their role in whitefly management. (% correct)
3. **Method:** Audience response survey

Step 1: Evaluation Objectives

Step 1: Evaluation Objectives

To determine Evaluation Objectives…

- **Start with the desired <u>outcomes & impacts</u>**

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

S I T U A T I O N

OUTCOMES – IMPACT		
Short	Medium	Long Term
What the short term results are	*What the medium term results are*	*What the ultimate impact(s) is*
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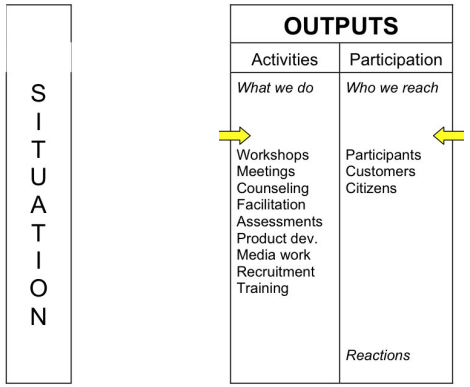
Determining Target and Focus of Evaluation

- Start with the desired outcomes & impacts
- **Look at your <u>outputs</u> to determine who to target and what method to use**

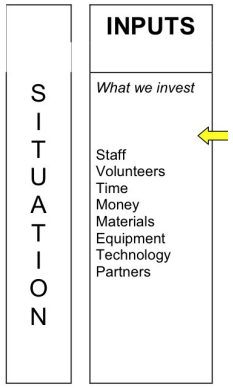
LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT



Determining Scope and Scale of Evaluation

- Look at desired outcomes & impacts
- Look at your outputs for who to target, what to focus on. Outputs should relate to desired outcomes
- **Look at your <u>inputs</u> (resources) to determine scope of evaluation**

LOGIC MODEL for
PROGRAM DEVELOPMENT and ASSESSMENT

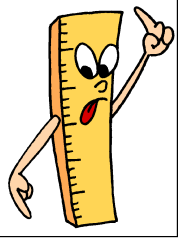


- ***Evaluation isn't free!***
- **Early investment in evaluation is critical (plan ahead)**
- **Budget for evaluation**
- **Make use of resources**
- **Know what you need to measure (step 2)**

Step 2: Measurement Indicators

What makes a good Measurement Indicator?

- Measurement indicator = data
- Is it measurable?
- Are data obtainable? (pre and post)
- Do data relate directly (or indirectly) to your evaluation objective?



What to Measure

Immediate → Short Term → Long Term

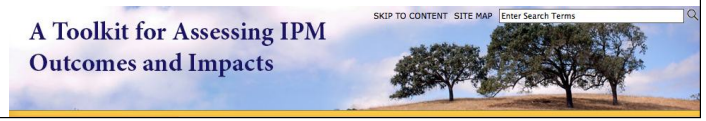
Learning Level	Action Level	Impact Level
awareness created	behavior changed	social impact
knowledge gained	practice adopted	economic impact
attitudes changed	decisions made	civil impact
skills developed	policies changed or adopted	environmental impact
aspirations sparked	social action initiated	
---People---		---World---

From: Barkman and McKee, "Using Qualitative Methods"

Step 3: Methodology

Evaluation Methods

- Surveys / questionnaires
- Interviews
- Focus groups
- Economic analyses
- Social Network Analysis
- Secondary (existing) data



Methods: Things to Think About

- Who is your target audience?
- What are your resources for evaluation?
- What will you (really) do with the data?
- Do questions link to desired outcomes?
- Are there Human subjects (IRB) requirements?
- Do data already exist? (secondary data)
- Should you partner with a social scientist?

Evaluation Payoff

- Improved understanding of how IPM programs influence people and the environment
- Satisfy grant requirements; Improve chances for future funding!
- Broad recognition of program impacts – federal budgets for IPM
- Career advancement!!!!

Logic Model Resources

- Toolkit for Assessing IPM Outcomes (WIPMC)
  - http://ipmimpact.ucanr.edu/
- Logic Models for IPM (Center for IPM)
  - http://www.ipmcenters.org/LogicModels/index.cfm
- Example IPM Outcomes (Center for IPM)
  - http://www.ipmcenters.org/LogicModels/samplemeasures.cfm
- Logic Model terminology, templates, examples (Univ. Wisconsin CE)
  - http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html

Questions?

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cals.arizona.edu/apmc

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