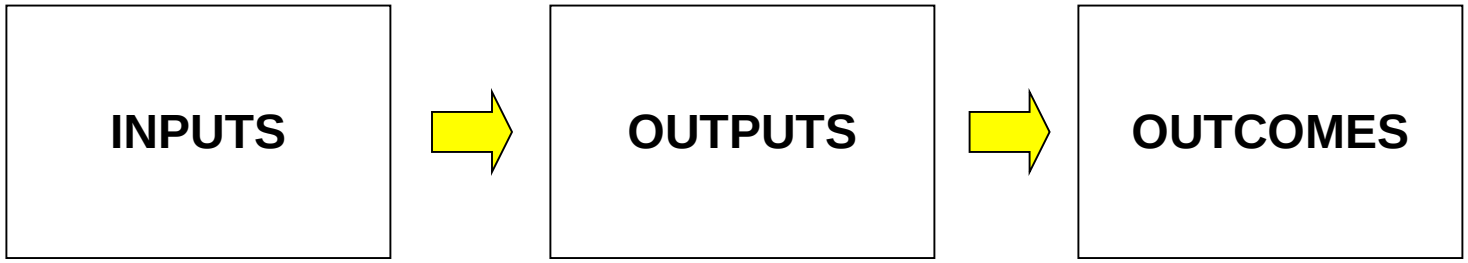
Developing a logic model

A logic model is…

- A depiction of a program showing what the program will do and what it is to accomplish.
- A series of “if-then” relationships that, if implemented as intended, lead to the desired outcomes
- The core of program planning and evaluation

Simplest form



Logic models can be applied to:

- a small program
- a process (i.e. a team working together)
- a large, multi-component program
- or even to an organization or business

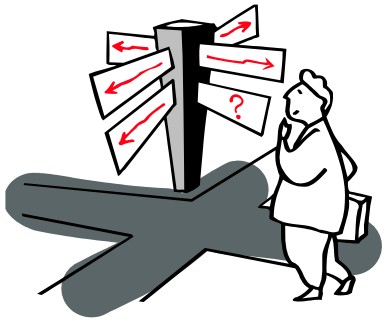
LOGIC

- *the principles of reasoning*
- *reasonable*
- *the relationship of elements to each other and a whole*

MODEL

- *small object representing another, often larger object (represents reality, isn't reality)*
- *preliminary pattern serving as a plan*
- *tentative description of a system or theory that accounts for all its known properties*

The American Heritage Dictionary, 2nd Ed



"If you don't know where you are going, how are you gonna' know when you get there?"

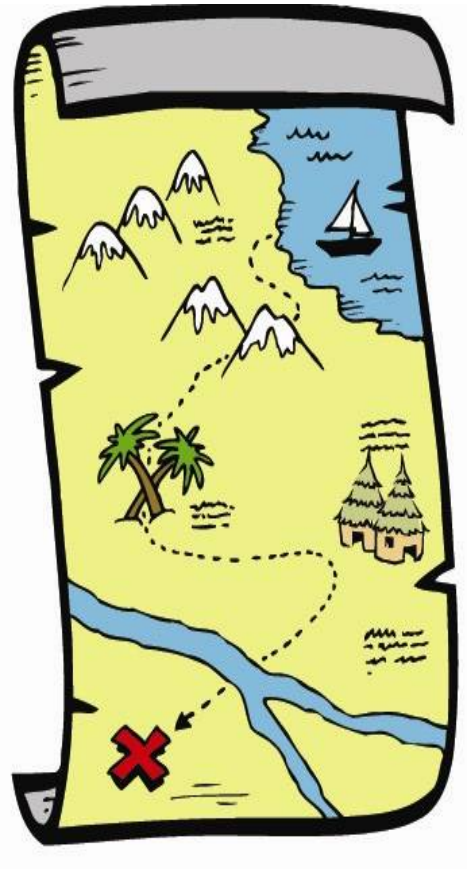
Yogi Berra

Where are you going?

How will you get there?

What will show that you've arrived?

Many people say
a logic model is
a road map



Logic model may also be called…

- Theory of change
- Program action
- Model of change
- Conceptual map
- Outcome map
- Program logic

Accountability era

- What gets measured gets done
- If you don't measure results, you can't tell success from failure
- If you can't see success, you can't reward it
- If you can't reward success, you're probably rewarding failure
- If you can't see success, you can't learn from it
- If you can't recognize failure, you can't correct it.
- If you can demonstrate results, you can win public support.

Reinventing Government, Osborne and Gaebler, 1992

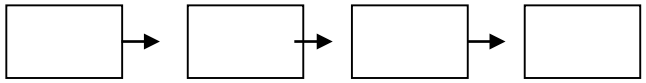
What logic model is not…

- A theory
- Reality
- An evaluation model or method

It is a framework for describing the relationships between investments, activities, and results.

It provides a common approach for integrating planning, implementation, evaluation and reporting.

A bit of history



Dates to late 1960's
Current accountability demands;
logic model in widespread use

- Public Sector - GPRA
- Non-Profit Sector
- Private Sector
- International Agencies
- Evaluation

Why the hype?
What's the benefit?

- Focus on and be accountable for what matters – OUTCOMES
- Provides common language
- Makes assumptions EXPLICIT
- Supports continuous improvement
- Promotes communications

Logic modeling is a way of thinking… not just a pretty graphic

"We build the road and the road builds us."

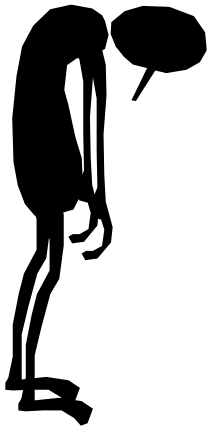
-Sri Lankan saying

Everyday example

HEADACHE

Get pills → Take pills → Feel better

Situation | INPUTS | OUTPUTS | OUTCOMES



Everyday example

HUNGRY

Get food → Eat food → Feel better

Every day logic model – Family Vacation

INPUTS	OUTPUTS	OUTCOMES
Family Members Budget Car Camping Equipment	Drive to state park Set up camp Cook, play, talk, laugh, hike	Family members learn about each other; family bonds; family has a good time

Assumptions

Assumptions underlie much of what we do. It is often these underlying assumptions that hinder success or produce less-than-expected results. One benefit of logic modeling is that it helps us make our assumptions explicit.

Assumptions

The beliefs we have about the program, the participants, and how the program will work. Includes ideas about:

- the problem or existing situation
- program operations
- expected outcomes and benefits
- the participants and how they learn, behave, their motivations
- resources
- staff
- external environment: influences
- the knowledge base
- etc.

Assumptions

As you left the house today and came to this workshop, what were some of your assumptions about the day?

Why is it important that we think about assumptions?

A youth financial literacy program

Teens establish sound financial habits

Teens make better decisions about the use of money

Teens gain knowledge and skills in money management

A high school financial planning program – 7 unit curriculum - is developed and delivered in high schools

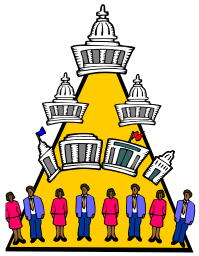
Partners invest resources

Business Counseling Example

Improved business performance

These owners gain knowledge and change practices resulting in

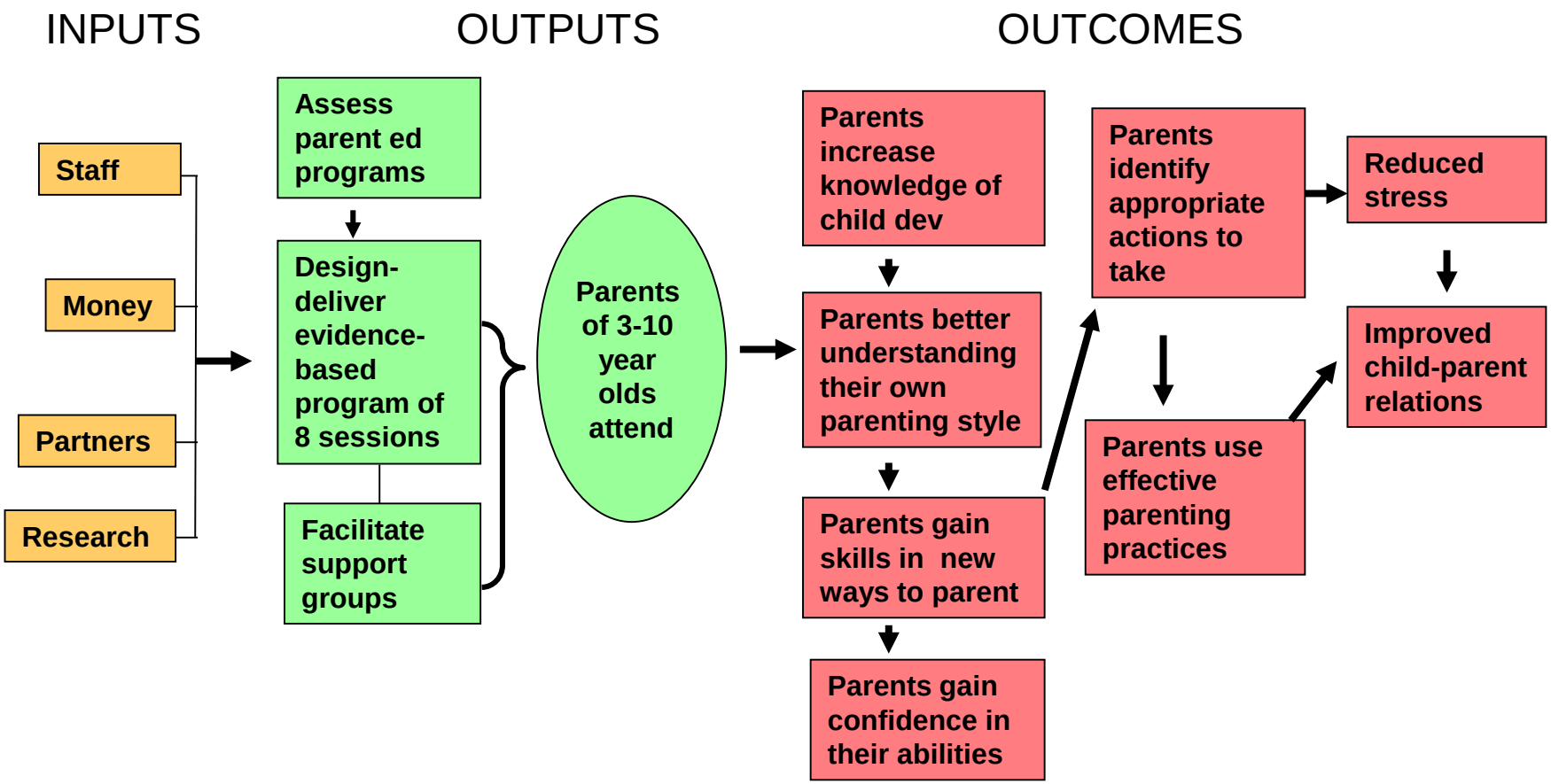
A variety of educational activities are provided to business owners who participate



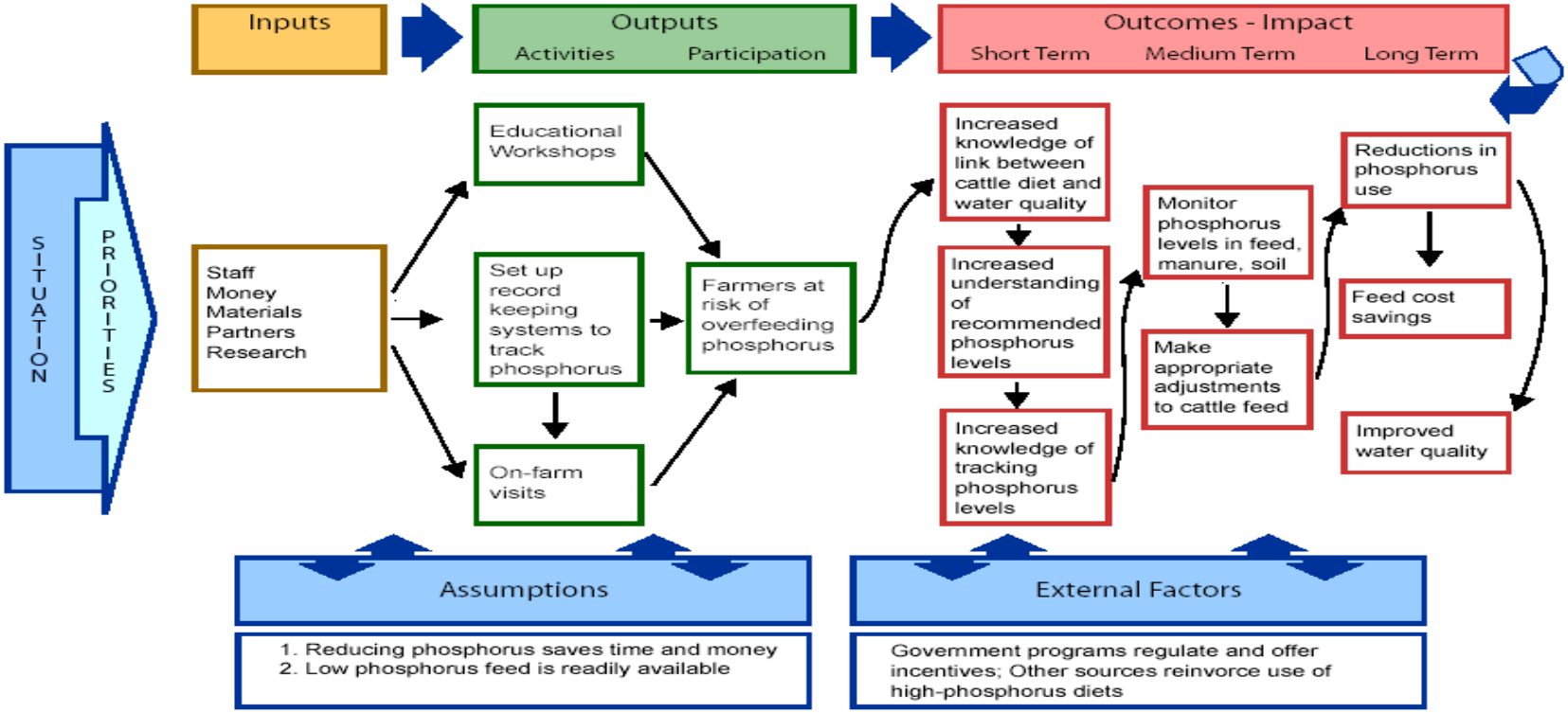
Agency invests time and resources

Parent Education Program – Logic model

SITUATION: During a county needs assessment, majority of parents reported that they were having difficulty parenting and felt stressed as a result



Example: Water quality



Logic model of a training workshop

Situation: Funder requires grantees to include a logic model in their funding request; grantees have limited understanding of logic models and are unable to fulfill the funding requirement

INPUTS

Trainer

Funds

Equipment

Research base

Training curriculum

OUTPUTS

- 3 hour training
- Interactive activities
- Group work
- Practice
- Q and A

Grantees

- Participants will increase knowledge of logic models
- Participants will increase ability to create a useful logic model of program
- Participants will Increase confidence in using logic models

Accountable here

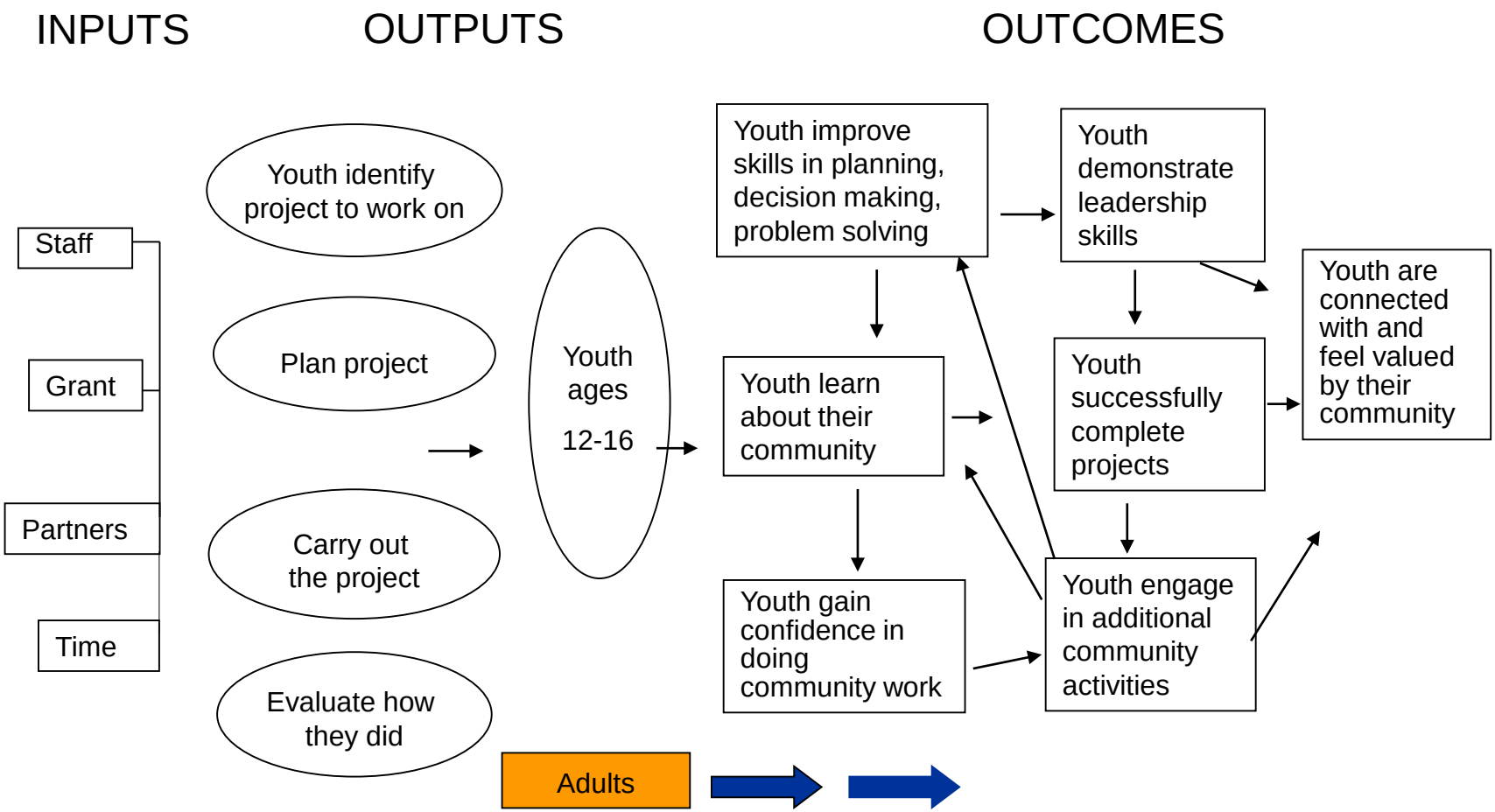
OUTCOMES

Create meaningful logic models → Fulfill requirement of funder

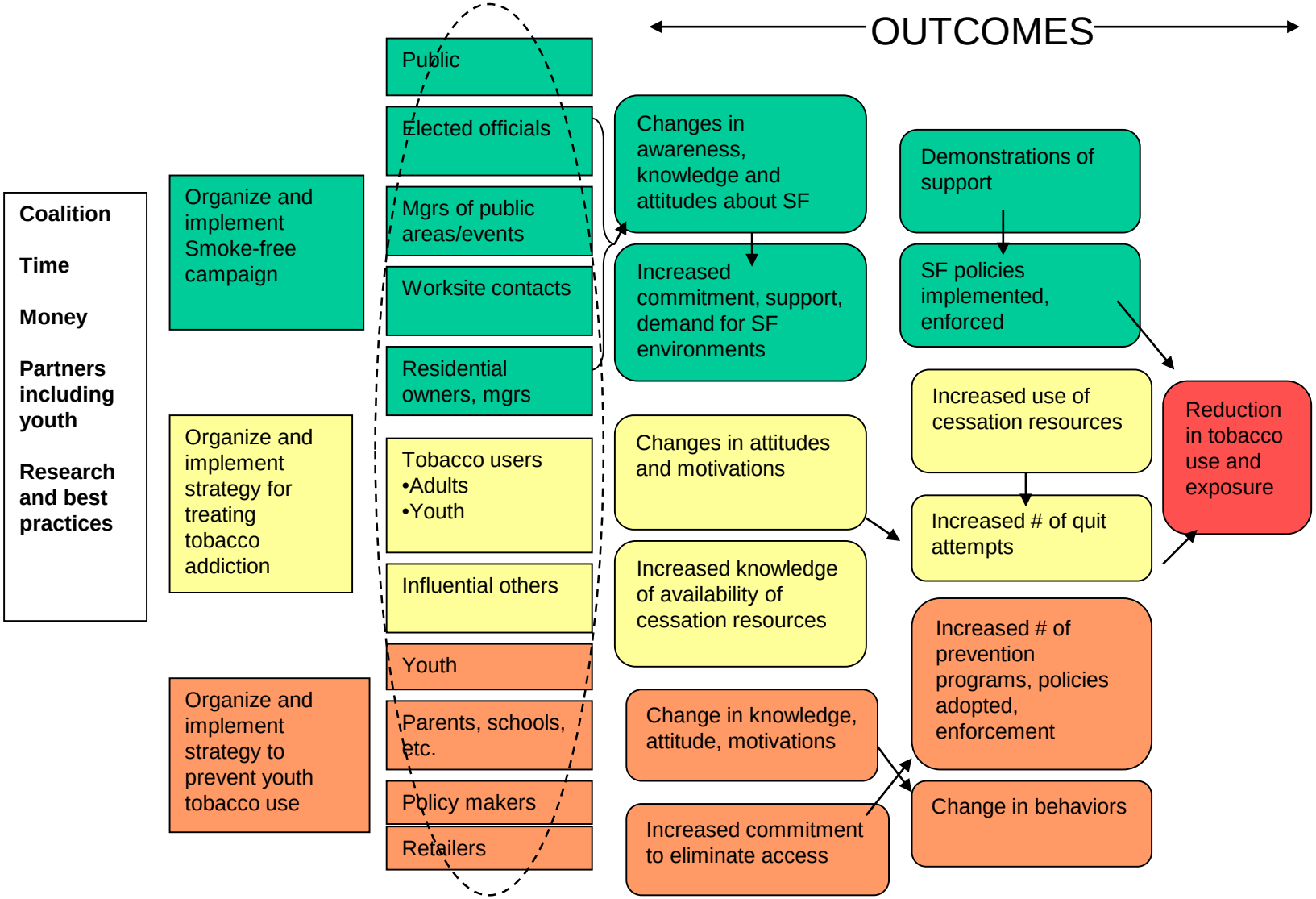
Use logic models in own work → Improved planning

Improved evaluation

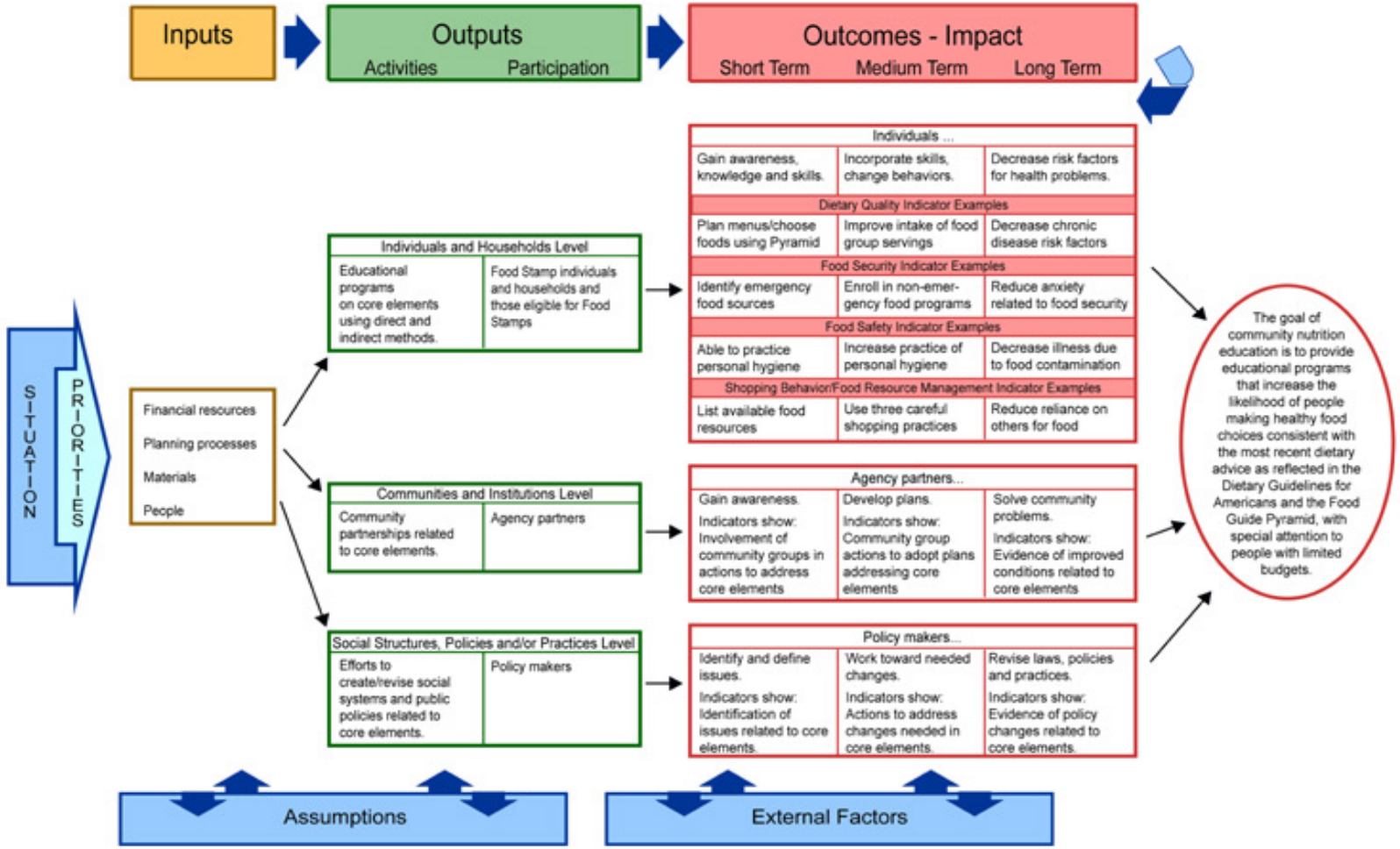
Youth and community service



Statewide Tobacco Control: Smoke-free environments



The Community Nutrition Education (CNE) Logic Model – Overview



Enhancing Program Performance with Logic Models – Introducing the CNE Logic Model CNE Logic Model - Overview December, 2002

If-then relationships

Underlying a logic model is a series of ‘if-then’ relationships that express the program’s **theory of change**

IF then IF then IF then IF then IF then

Theory of change

"A theory of change is a description of how and why a set of activities – be they part of a highly focused program or a comprehensive initiative – are expected to lead to early, intermediate, and long-term outcomes over a specified period."

(Anderson, 2000)

Logical chain of connections showing what the program is to accomplish

INPUTS	OUTPUTS		OUTCOMES		
Program investments	Activities	Participation	Short	Medium	Long-term
What we invest	**What we do**	**Who we reach**	**What results**		

How will activities lead to desired outcomes?

A series of if-then relationships

Tutoring Program Example

IF

We invest time and money

then

IF

We can provide tutoring 3 hrs/week for 1 school year to 50 children

then

IF

Students struggling academically can be tutored

then

IF

They will learn and improve their skills

then

IF

They will get better grades

then

They will move to next grade level on time

Don’t forget the arrows

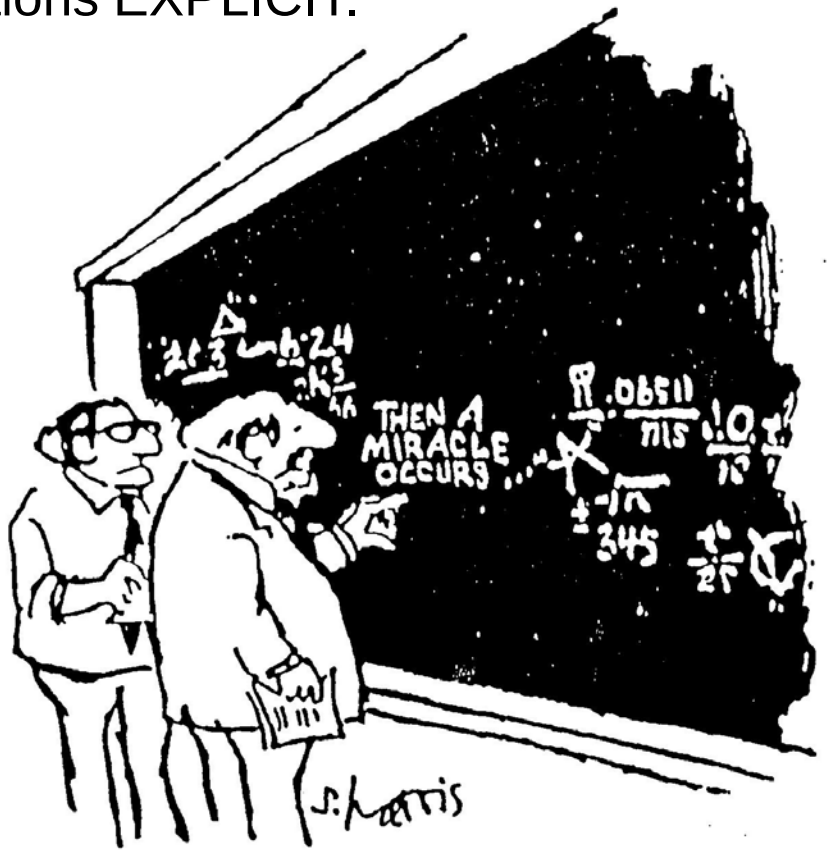
- Arrows and feedback loops show the links between inputs, outputs and outcomes
- Arrows depict the underlying causal connections

A common problem is that activities and strategies often do not lead to the desired outcomes.

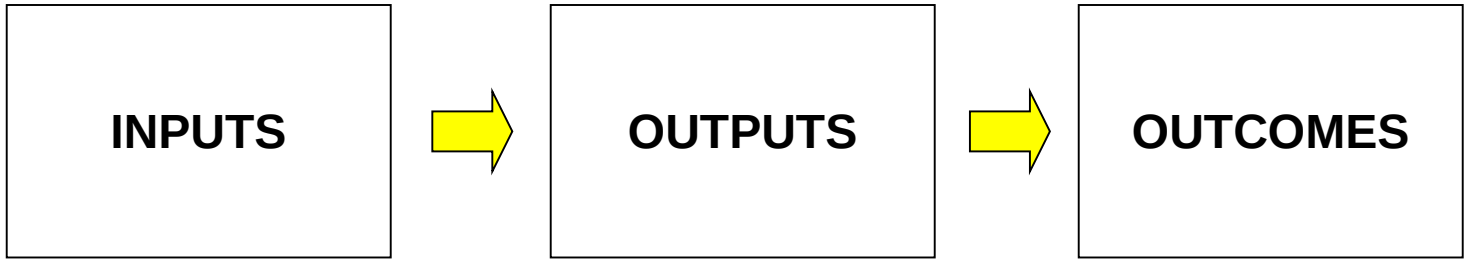
Check your ‘if-then’ statements and ensure that they make sense and lead to the outcomes you want to achieve.

A logic model makes the connections EXPLICIT.

“I think you should be more explicit here in Step Two.”



Simplest form of logic model



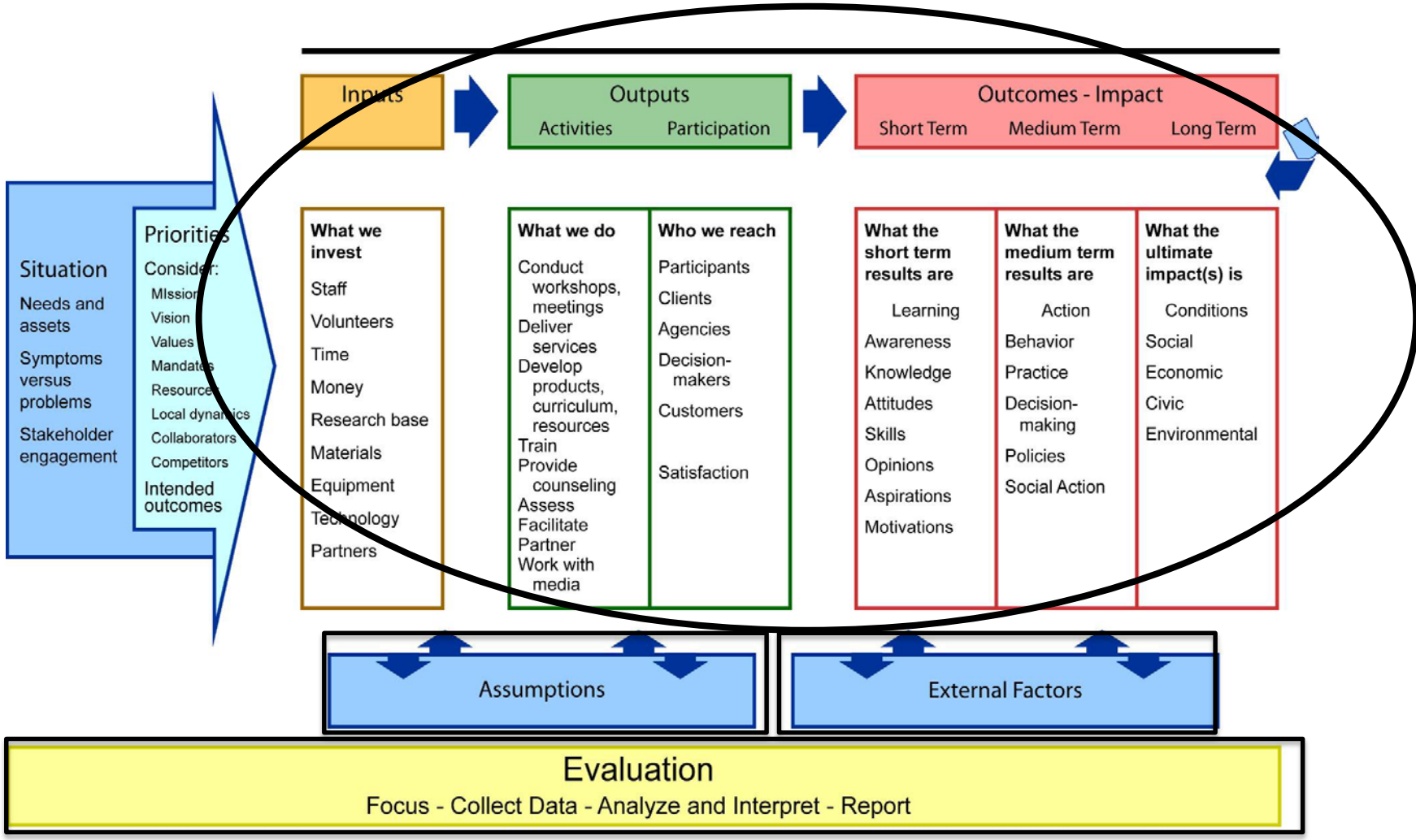
A bit more detail

INPUTS	OUTPUTS		OUTCOMES		
Program investments	Activities	Participation	Short	Medium	Long-term
What we invest	What we do	Who we reach	What results		

SO WHAT??

What is the VALUE?

Fully detailed logic model



Defining the Situation: Critical first step in logic model development

What **problematic** condition exists that demands a **programmatic** response?

- Why does it exist?
- For whom does it exist?
- Who has a stake in the problem?
- What can be changed?

If incorrectly understood and diagnosed,
everything that flows from it will be wrong.

Factors affecting problems: protective factors; risk factors

Review research, evidence, knowledge-base

Traps:

- Assuming we know cause: symptoms vs. root causes.
- Framing a problem as a need where need is actually a program or service. “Communities need leadership training” Precludes discussion of nature of the problem: what is the problem? Whose problem? Leads one to value provision of the service as the result – is the service provided or not?

Inputs

What we invest

Staff

Volunteers

Time

Money

Research base

Materials

Equipment

Technology

Partners

OUTPUTS	
What we do	Who we reach
ACTIVITIES	**PARTICIPATION**
•Train, teach •Deliver services •Develop products and resources •Network with others •Build partnerships •Assess •Facilitate •Work with the media •…	•Participants •Clients •Customers •Agencies •Decision makers •Policy makers Satisfaction

OUTCOMES

What results for individuals, families, communities…..

SHORT *Learning*	MEDIUM *Action*	LONG-TERM *Conditions*
Changes in	**Changes in**	**Changes in**
• Awareness • Knowledge • Attitudes • Skills • Opinion • Aspirations • Motivation • Behavioral intent	•Behavior •Decision-making •Policies •Social action	Conditions Social (well-being) Health Economic Civic Environmental

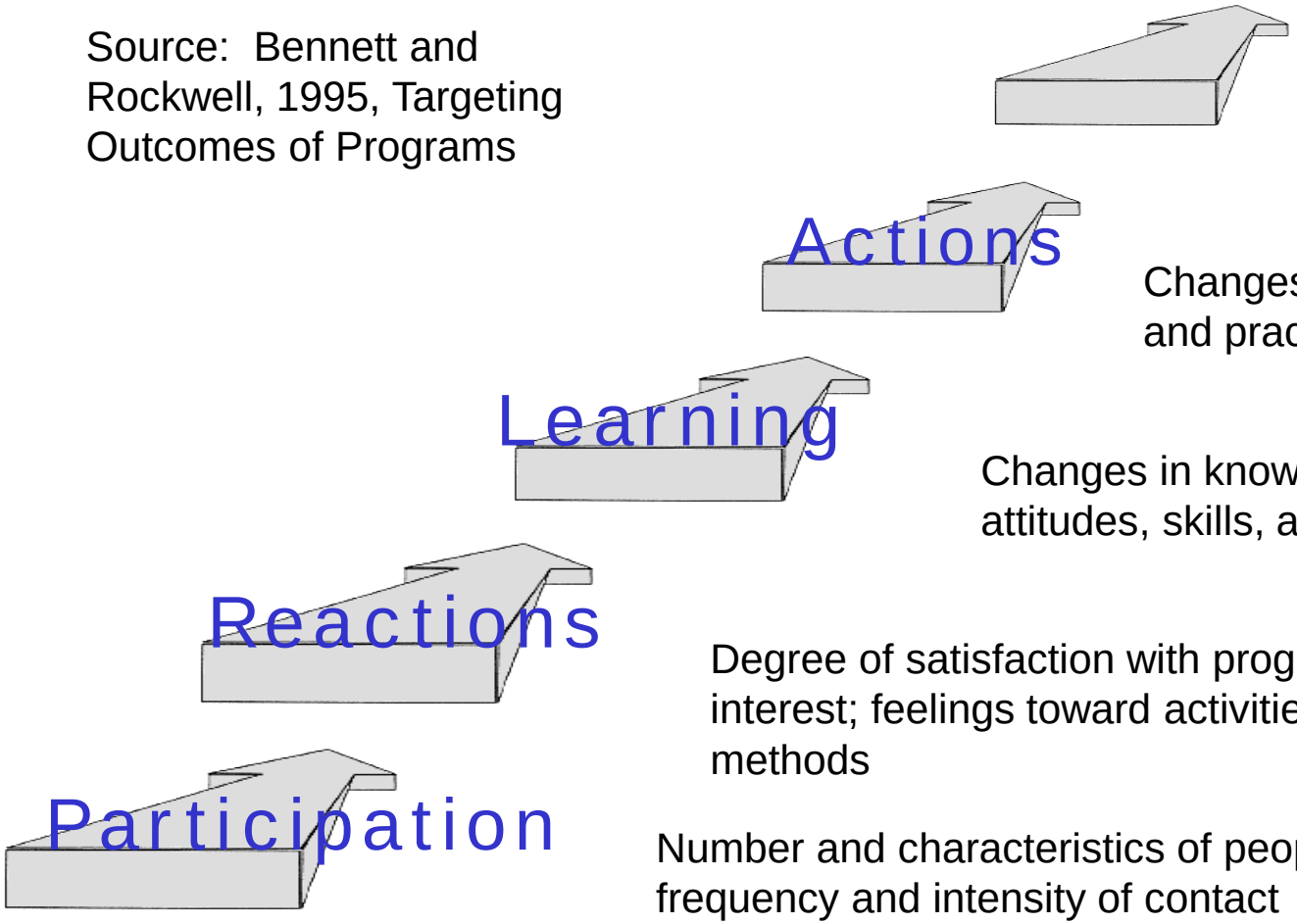
C H A I N O F O U T C O M E S

Tend not be included in a logic model graphic:

- Situational statement
  - Priorities
- List of assumptions
- List of external factors
- Evaluation methods

Hierarchy of effects

Source: Bennett and Rockwell, 1995, Targeting Outcomes of Programs



Language: What do you mean by…

- Goal = Impact
- Impact = Long-term outcome
- Objectives (participant focused) = Outcomes
- Activities = Outputs
  - Outputs may signify “tangible” accomplishments as a result of activities; products

Goal – outcome definition

Goal represents a general, big-picture statement of desired results. "We find that it is useful to think of **goals** as the answer to the question 'What are issues that you would like the program to address?' (e.g., the goal of the program is to address existing community laws and norms about ATOD use) and **outcomes** as the answer to: 'What changes do you want to occur because of your program?' (e.g., the outcome of the program will be to increase the number of community residents who believe teenaged smoking is dangerous)."

(Western CAPT)

Outputs vs. Outcomes

Example:

Number of patients discharged from state mental hospital is an output.

Percentage of discharged who are capable of living independently is an outcome

Not how many worms
the bird feeds its young,
but how well the fledgling flies

(United Way of America, 1999)

Program	Outputs	Outcomes
Crime control	Hrs of patrol # responses to calls # crimes investigated Arrests made	Reduction in crimes committed Reduction in deaths and injuries resulting from crime; Less property damaged or lost due to crime
Highway construction	Project designs Highway miles constructed Highway miles reconstructed	Capacity increases Improved traffic flow Reduced travel times Reduction in accidents and injuries

From Poister, 2003

So, why bother? What's in this for you?

"This seems like a lot of work."

"Where in the world would I get all the information to put in a logic model?

"I'm a right brain type of person – this isn't for me."

"Even if we created one, what would we do with it?"

LM Benefits: What we are finding:

- Provides a common language
- Helps us differentiate between “what we do” and “results” --- **outcomes**
- Increases understanding about program
- Guides and helps focus work
- Leads to improved planning and management
- Increases intentionality and purpose
- Provides coherence across complex tasks, diverse environments

- Enhances teamwork
- Guides prioritization and allocation of resources
- Motivates staff
- Helps to identify important variables to measure; use evaluation resources wisely
- Increases resources, opportunities, recognition
- Supports replication
- Often is required!

Testimonials

"Wow – so that is what my program is all about"

"I've never seen our program on one page before"

"I'm now able to say no to things; if it doesn't fit within our logic model, I can say no. "

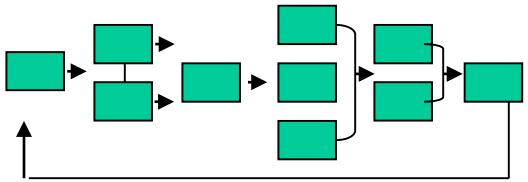
"I can do this"

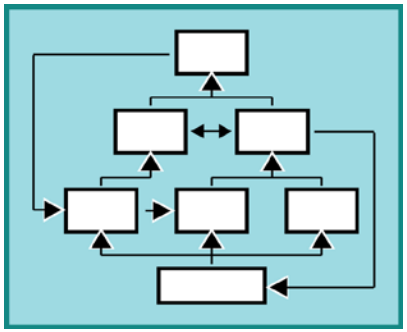
"This took time and effort but it was worth it; our team never would have gotten here otherwise."

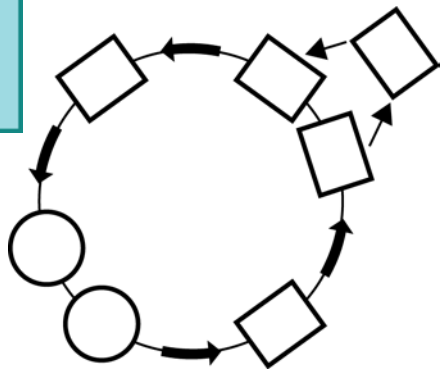
"It helped us to think as a team – to build a team program vs. an individual program."

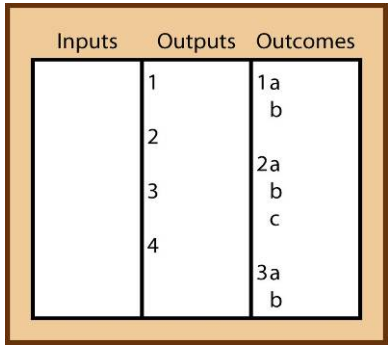
What does a logic model look like?

- Graphic display of boxes and arrows; vertical or horizontal
  - Relationships, linkages
- Any shape possible
  - Circular, dynamic
  - Cultural adaptations; storyboards
- Level of detail
  - Simple
  - Complex
- Multiple models
  - Multi-level programs
  - Multi-component programs



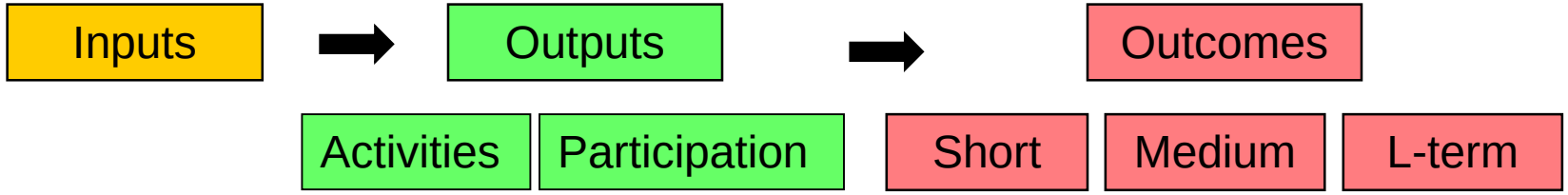




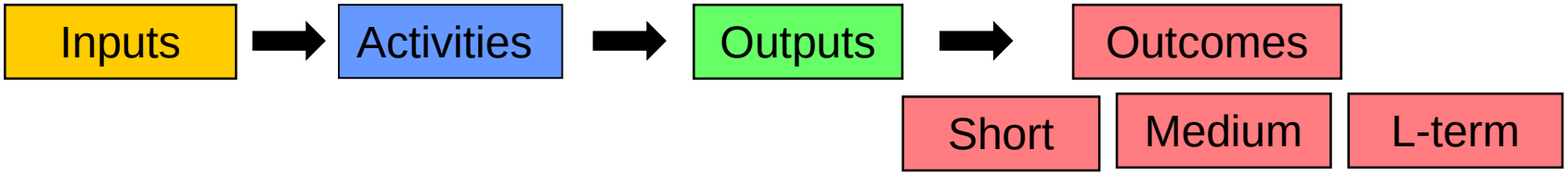


Common variations

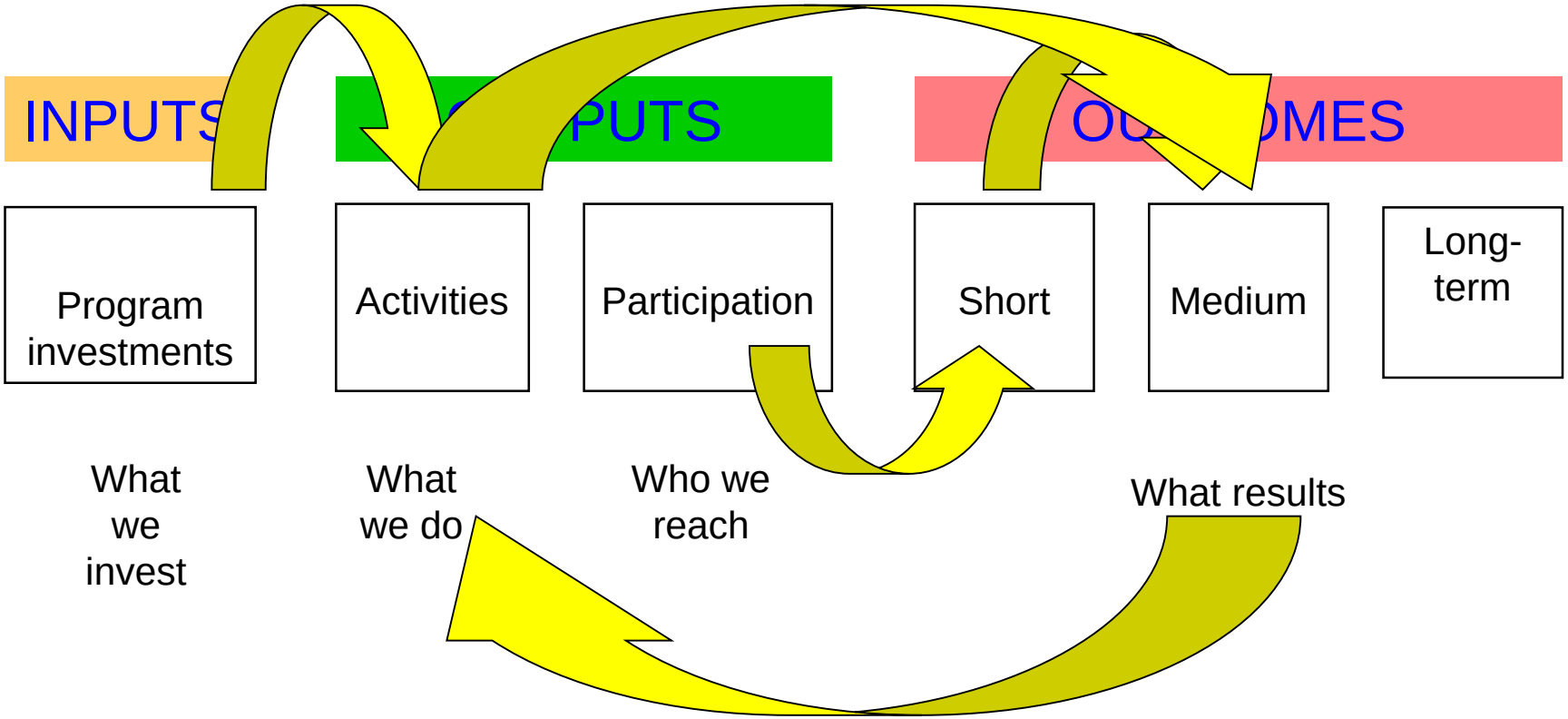
UWEX logic model



Other common logic model used by United Way, Center for Disease Control and others



Feedback loops and multi-dimensions



“Families” of models or “nested” models

Multiple models may be needed to describe and explain complex systems or initiatives.

Bring coherence across an organization

- Multi-level: a way to describe and link activities across an organization to depict varying levels such as national-state-county levels OR, institution-division-unit levels.
- Multi-component programs: A series of models to depict various components (goals, sites, target populations) within a comprehensive initiative.

Nested logic models – families of logic models

- View from space
  – big picture; overall roadmap
- View from mountaintop
  – more detail: by component program, player, participant group
- View from ground level – “you are here”

Multi level - Logic models can be linked to display consistency of purpose and strategy across levels and show how parts work to achieve organizational goals

MISSION

Macro level –

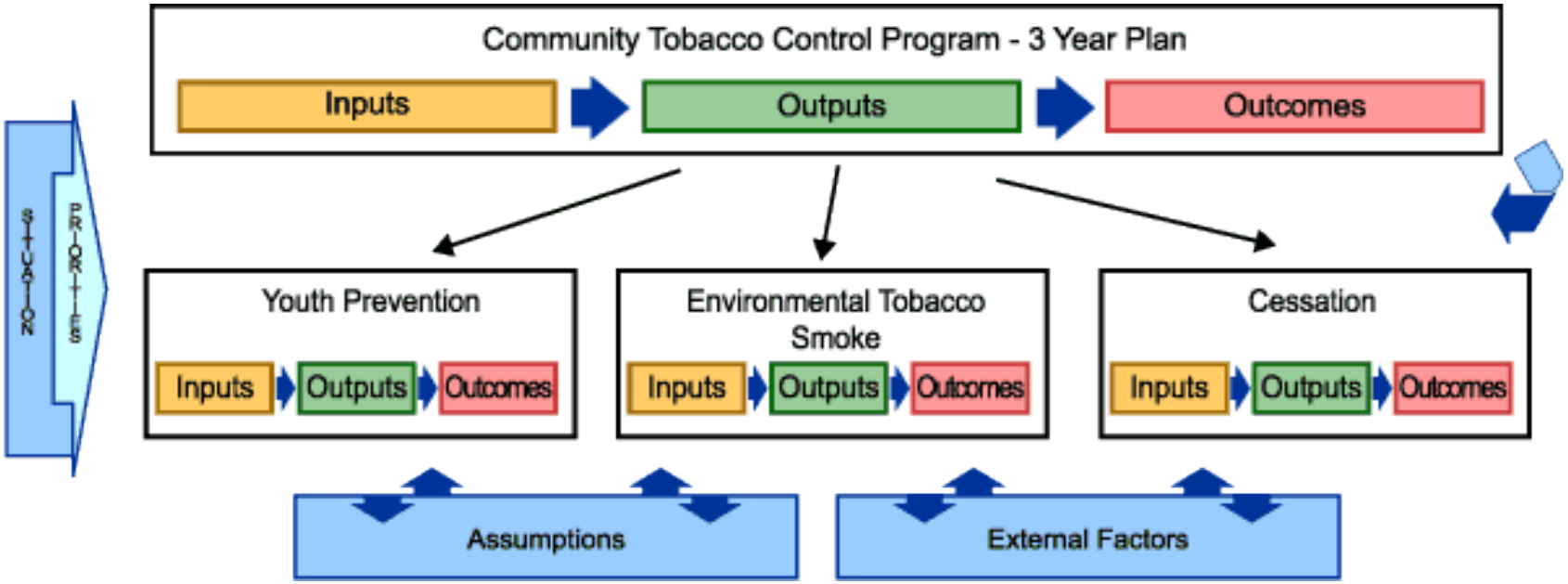
Marathon County Government

Each logic model is built with reference to the levels above and below, and in relation to the organization's or program's mission.

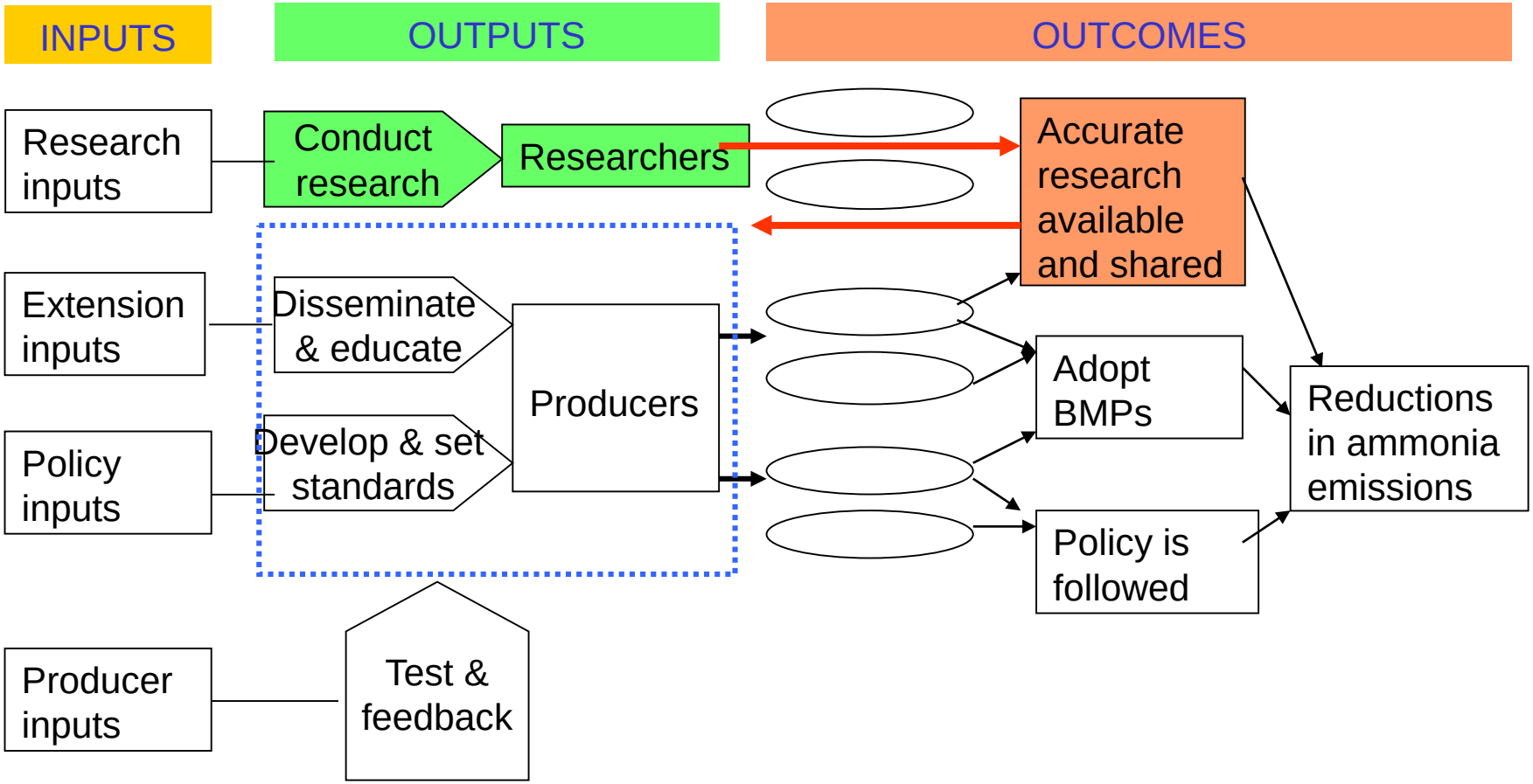
Department Level

Program level

Multi-component – a way to describe and link different activities within a comprehensive initiative.

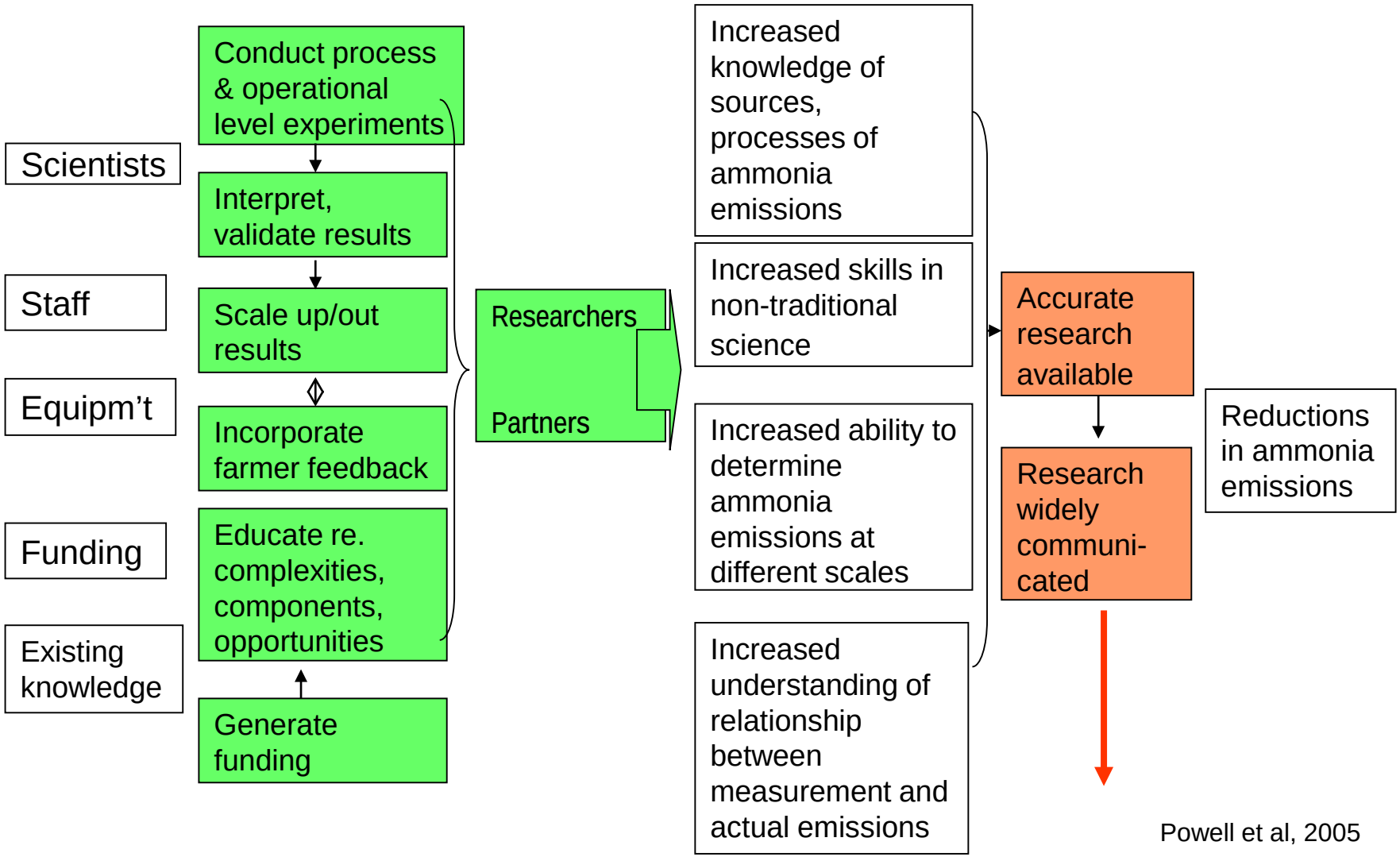


Multi agency partnership:
Abating ammonia emissions from dairy farms



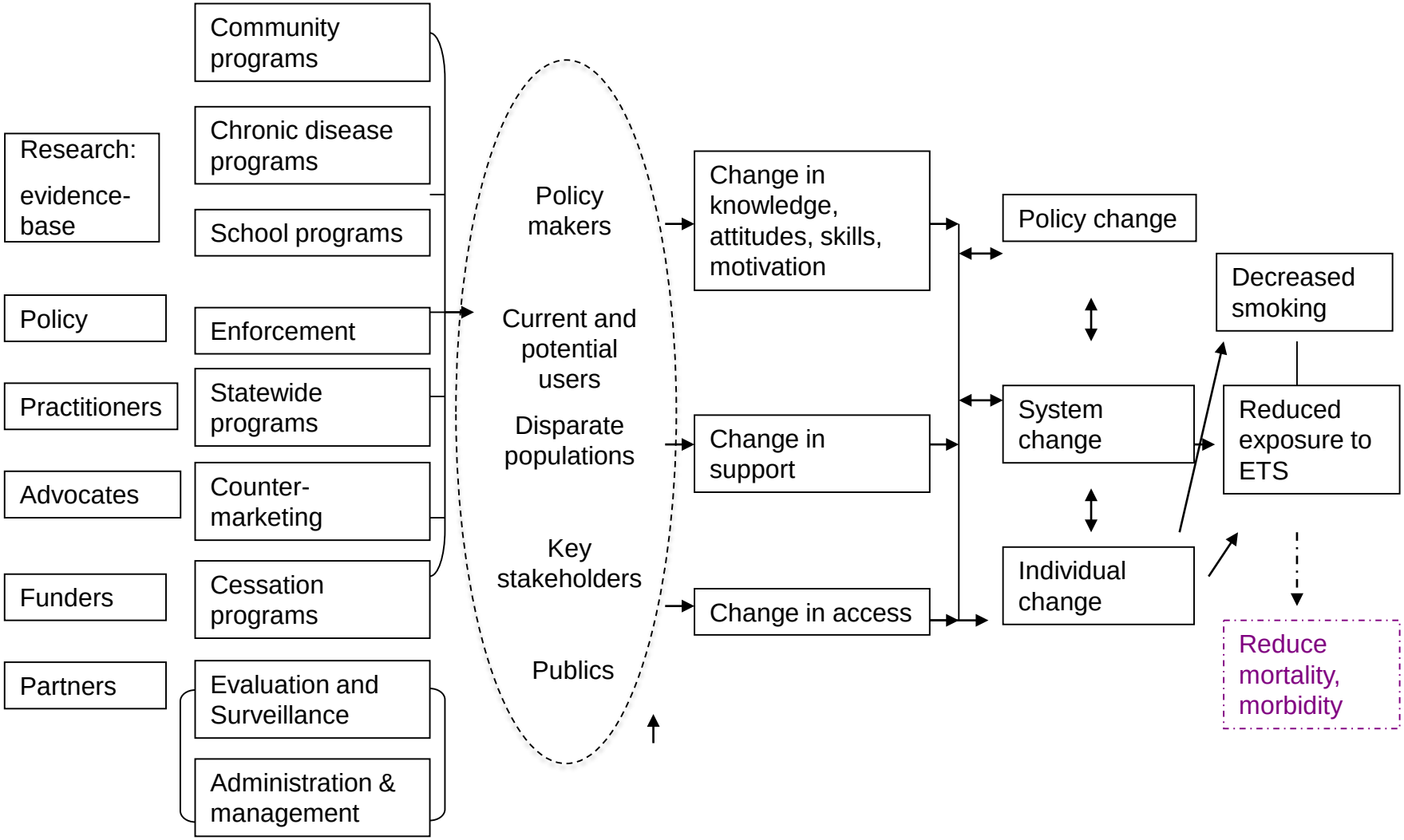
Powell et al, 2005

Multi agency partnership # 2: Research logic model within the overall initiative

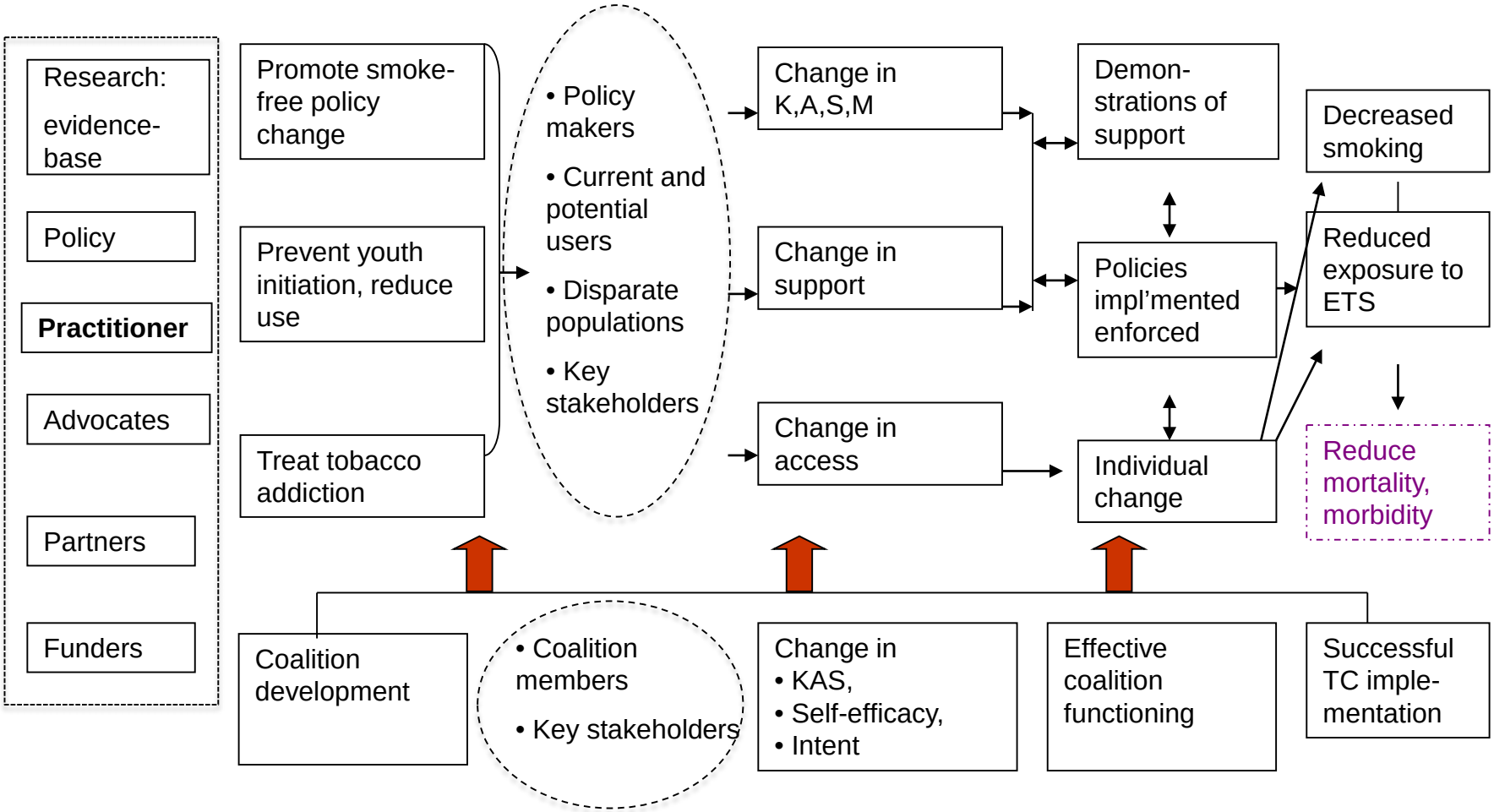


Powell et al, 2005

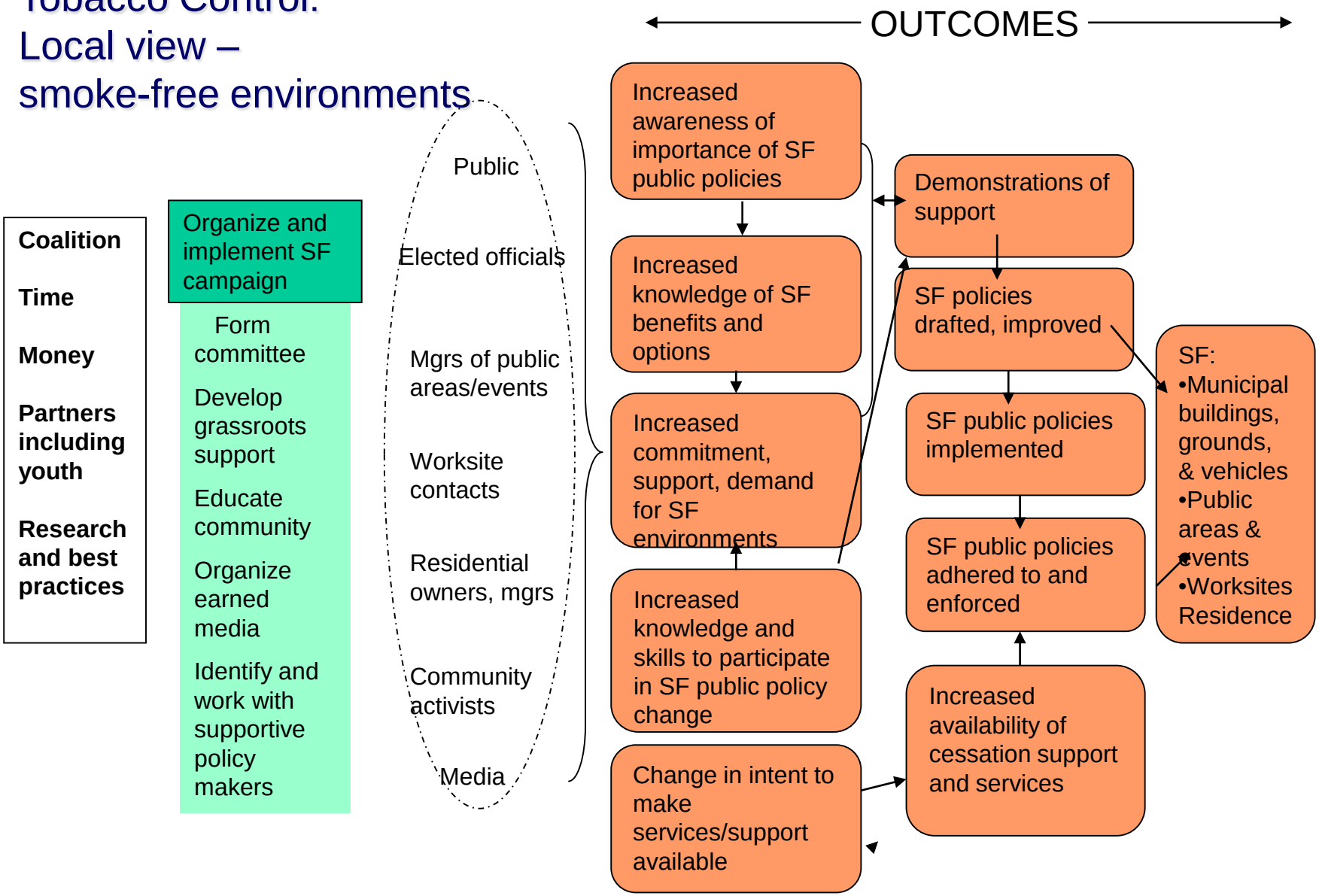
Tobacco Control: Global View



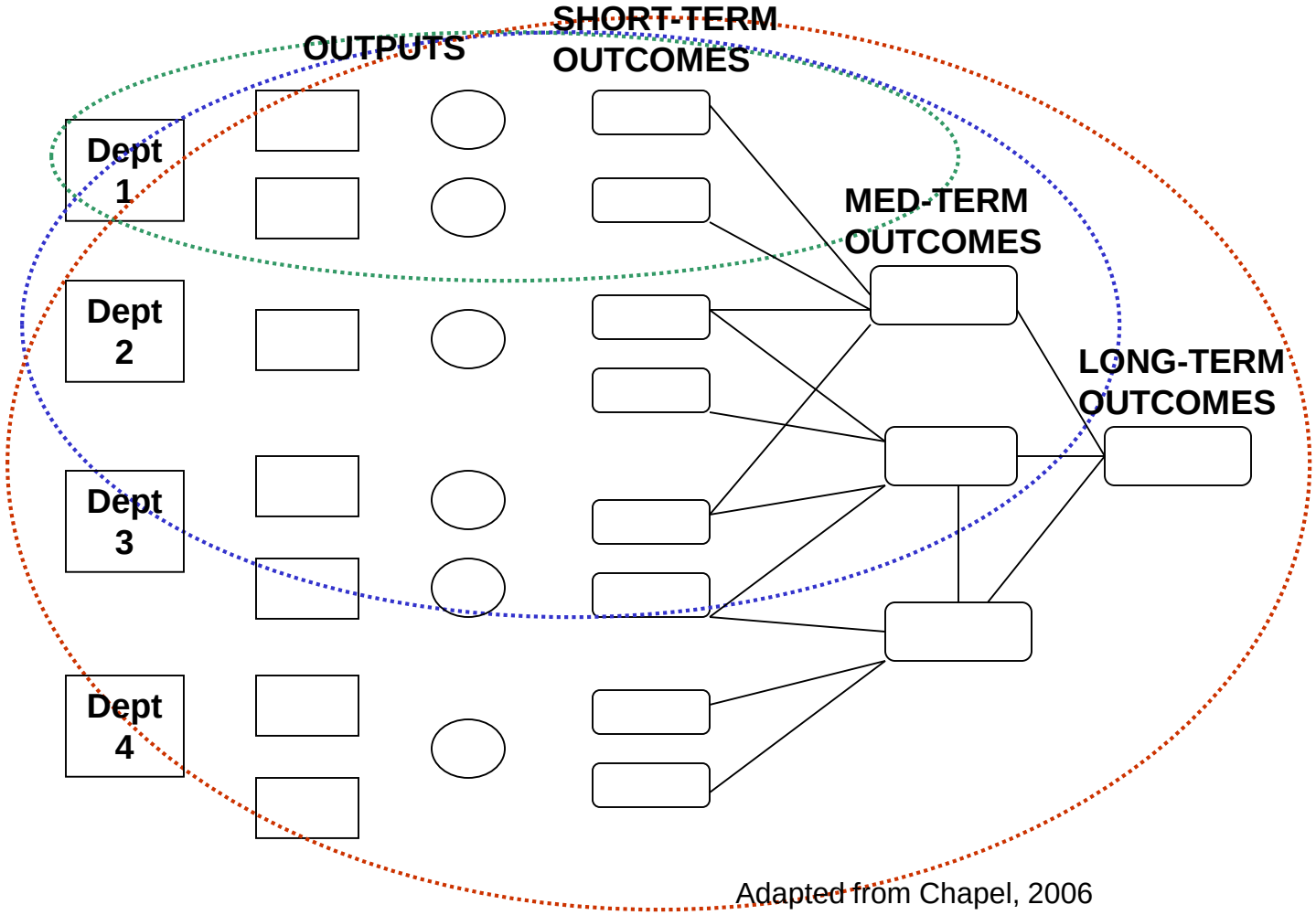
Tobacco Control: Statewide View - Community Program



Tobacco Control: Local view – smoke-free environments



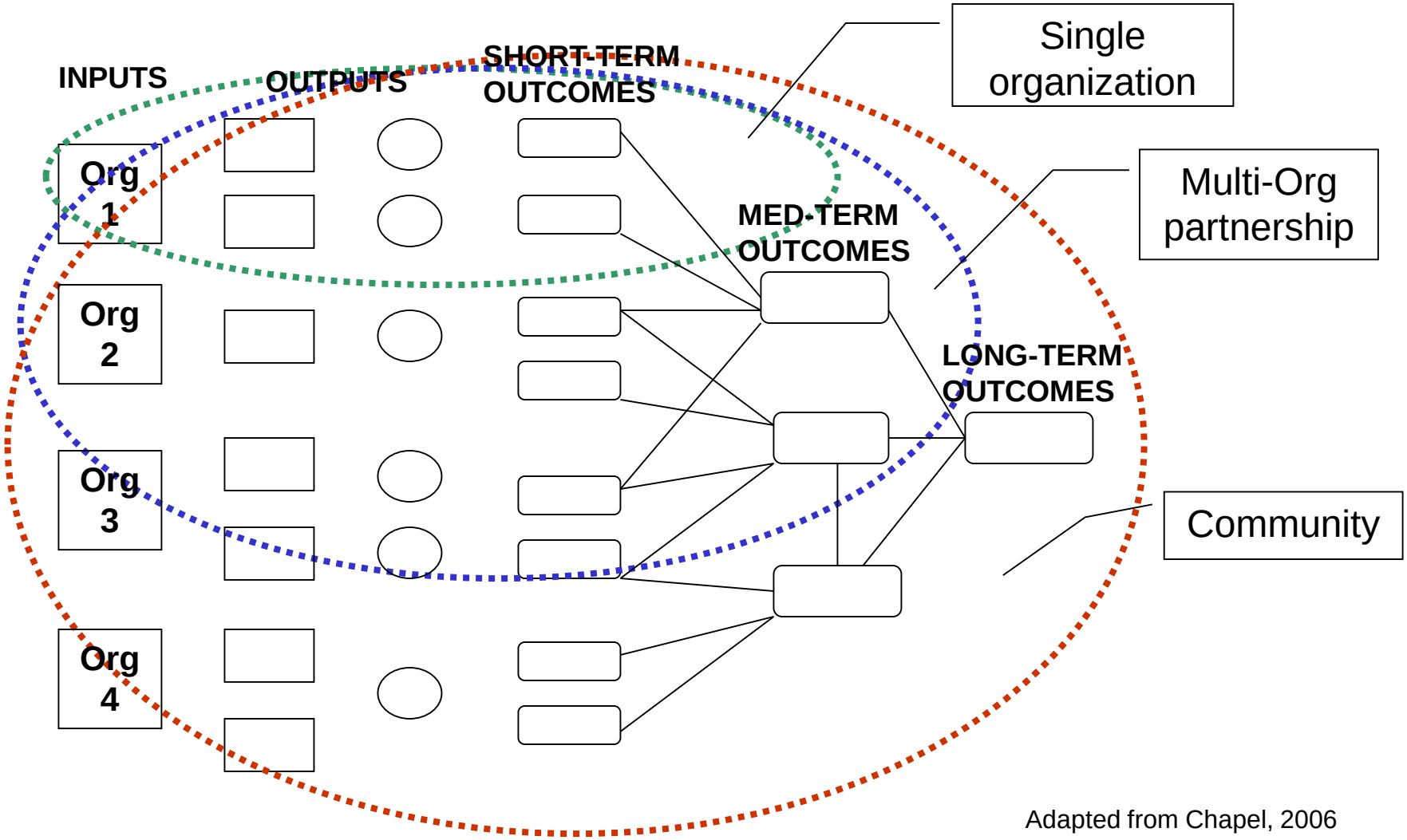
Programs linked as a system bringing coherence across an organization



Adapted from Chapel, 2006

MISSION

Programs as “systems” within the community setting



Adapted from Chapel, 2006

Culture is…

A set of socially transmitted and learned behavior patterns, beliefs, institutions, and all other products of human activity and thought that characterize a particular population, community, profession, or organization.

Cultural appropriateness of logic model

- Is a logic model culturally appropriate?
- What, if anything, would help make a logic model or its use suitable for the cultural context?
- What would you do?

First things first…

- Determine purpose of logic model
  - Who will use it? For what?
- Involve others
- Set boundaries for logic model
  - Level of specificity
- Understand situation
- Explore research, knowledge base, what others are doing/have done

Group process

Limitations

Logic Model…

- Represents intention, is not reality
- Focuses on expected outcomes
- Challenge of causal attribution
  - ✓ *Many factors influence process and outcomes*
- Doesn't address:

  Are we doing the right thing?

Cautions:

- Can become too time consuming – and just paperwork
- May become too focused on outcomes without adequate attention to inputs and outputs and the logical relationships that connect them to end results
- May end up perfecting the key to the wrong lock
  - Is the program focusing on the right thing?
- Mixing levels within one logic model
- Attending to context only at front end
- Thinking that logic model has to be “correct”
  - Map of Pyrennes vs Alps
- Becomes ‘fixed’ rather than flexible and dynamic

Parent Education Program example

Situation: During a county needs assessment, a majority of parents reported they were having difficulty parenting, felt stressed and were unhappy with their parent-child relationships.

INPUTS	OUTPUTS	OUTCOMES
		Reduced stress
		Improved child-parent relations

A community collaborative, including the local school district, Extension, and the local UW-system campus has received a grant for a project titled "A Day at the University." The project is a post-secondary education day for Hispanic students grades 7-8 held on the local UW campus. The School District will release the students from school to attend the day long event which will include workshops, a student panel, lunch, and an "informance." Students will be given an assignment to be shared in their schools that reflects the knowledge gained during their "Day at the University."

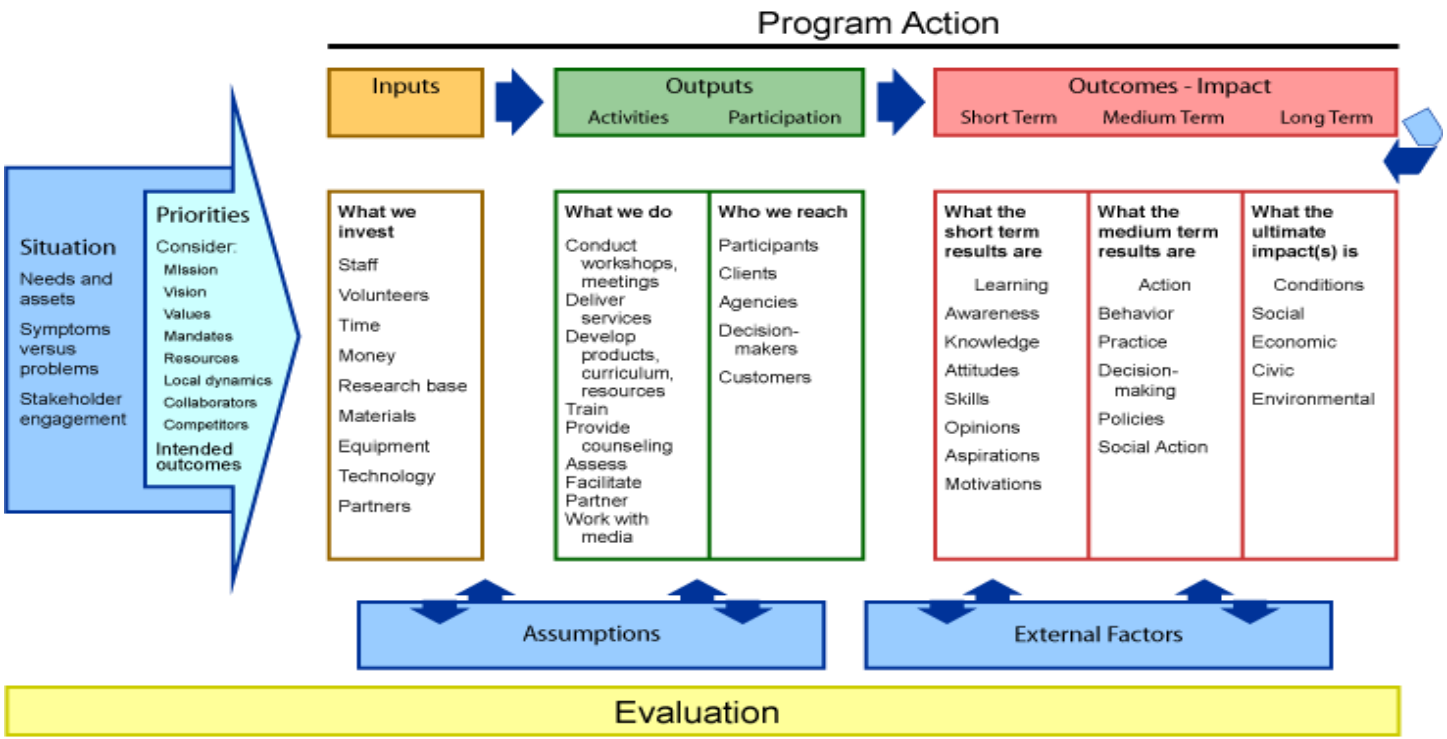
Objectives for the day are that the students will gain an understanding that college is a possibility for them through advanced planning and wise choices, they will be able to explain basic types of financial aid and how to qualify, they will know some key resources available to help them as they move through high school, and they will meet several successful Hispanic community leaders who are college graduates.

1) Create a logic model based on this description
2) Write down questions that you'd ask the project staff to further clarify the project's theory of change.

Check your logic model

1. Is it meaningful?
2. Does it make sense?
3. Is it doable?
4. Can it be verified?

Logic model in evaluation



What do you want to know? **How will you know it?**

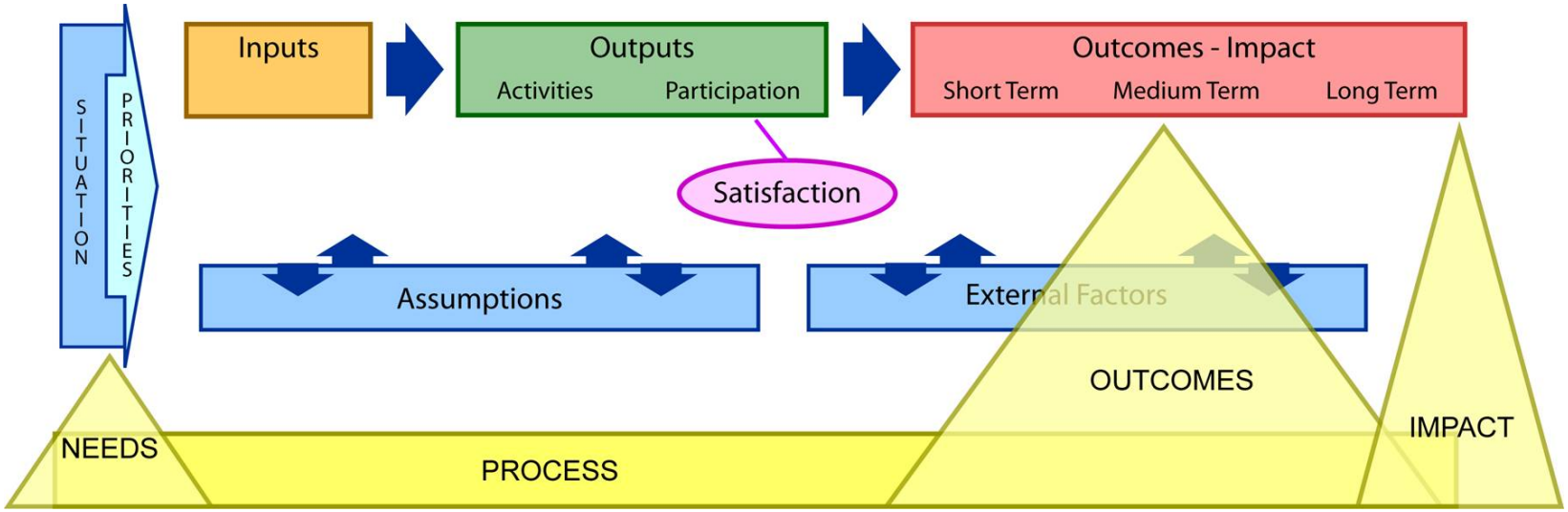
EVALUATION: check and verify

Logic Model helps with Evaluation

Provides the program description that guides our evaluation process

- Helps us match evaluation to the program
- Helps us know what and when to measure
  - Are you interested in process and/or outcomes?
- Helps us focus on key, important information
  - Prioritize: where will we spend our limited evaluation resources?
  - What do we really need to know??

Logic model and common types of evaluation



Types of evaluation

Needs/asset assessment:

What are the characteristics, needs, priorities of target population?

What are potential barriers/facilitators?

What is most appropriate to do?

Process evaluation:

How is program implemented?

Are activities delivered as intended? Fidelity of implementation?

Are participants being reached as intended?

What are participant reactions?

Outcome evaluation:

To what extent are desired changes occurring? Goals met?

Who is benefiting/not benefiting? How?

What seems to work? Not work?

What are unintended outcomes?

Impact evaluation:

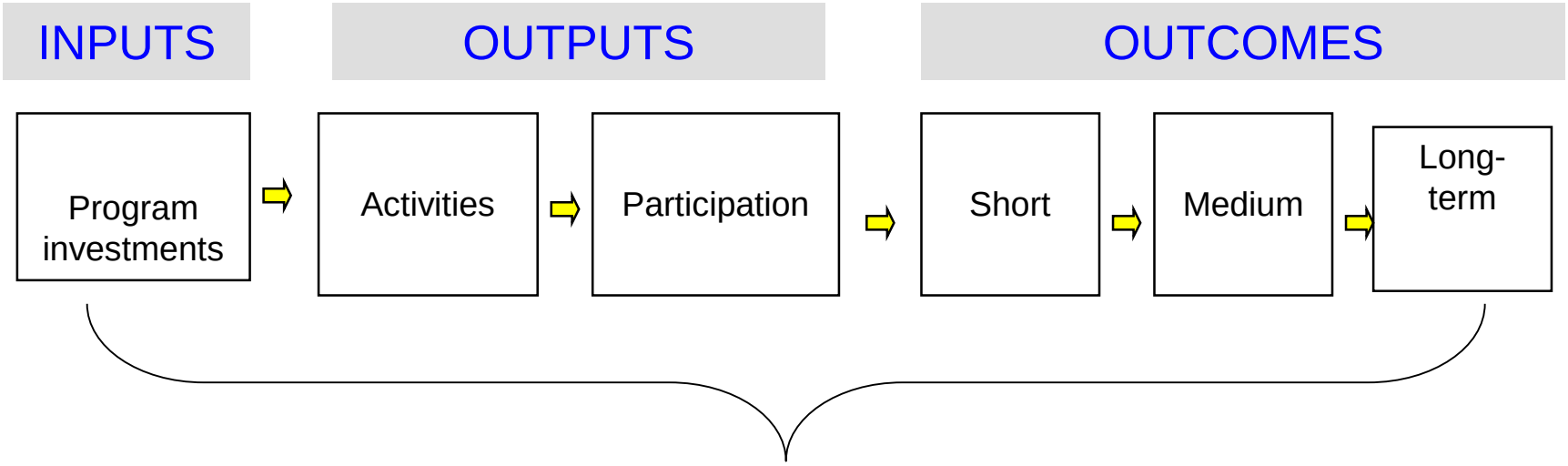
To what extent can changes be attributed to the program?

What are the net effects?

What are final consequences?

Is program worth resources it costs?

Match evaluation questions to program



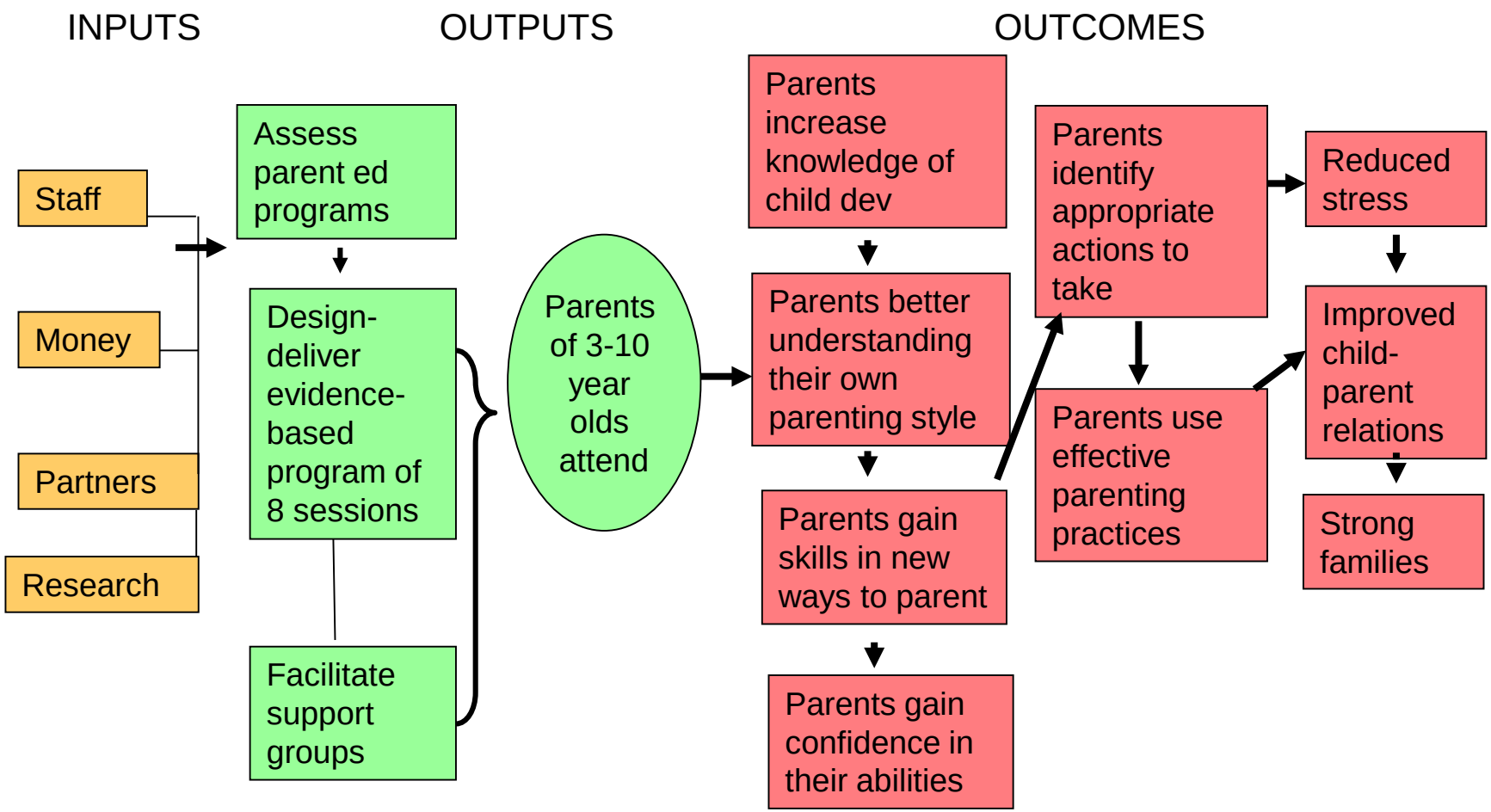
Evaluation questions:

What questions do you want to answer?
e.g., accomplishments at each step; expected causal links; unintended consequences or chains of events set into motion

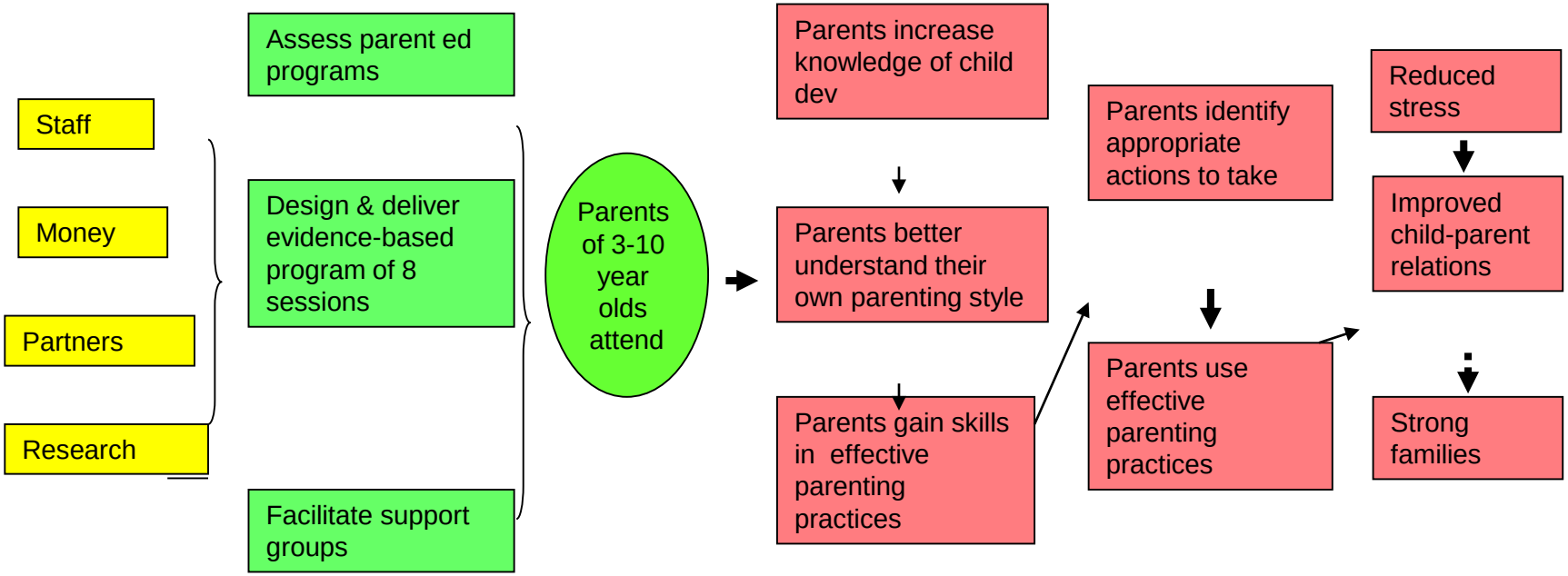
Indicators:

What evidence do you need to answer your questions?

What do you (and others) want to know about the program?



Possible evaluation questions…



What amount of $ and time were invested?

Were all sessions delivered? How well? Do support groups meet?

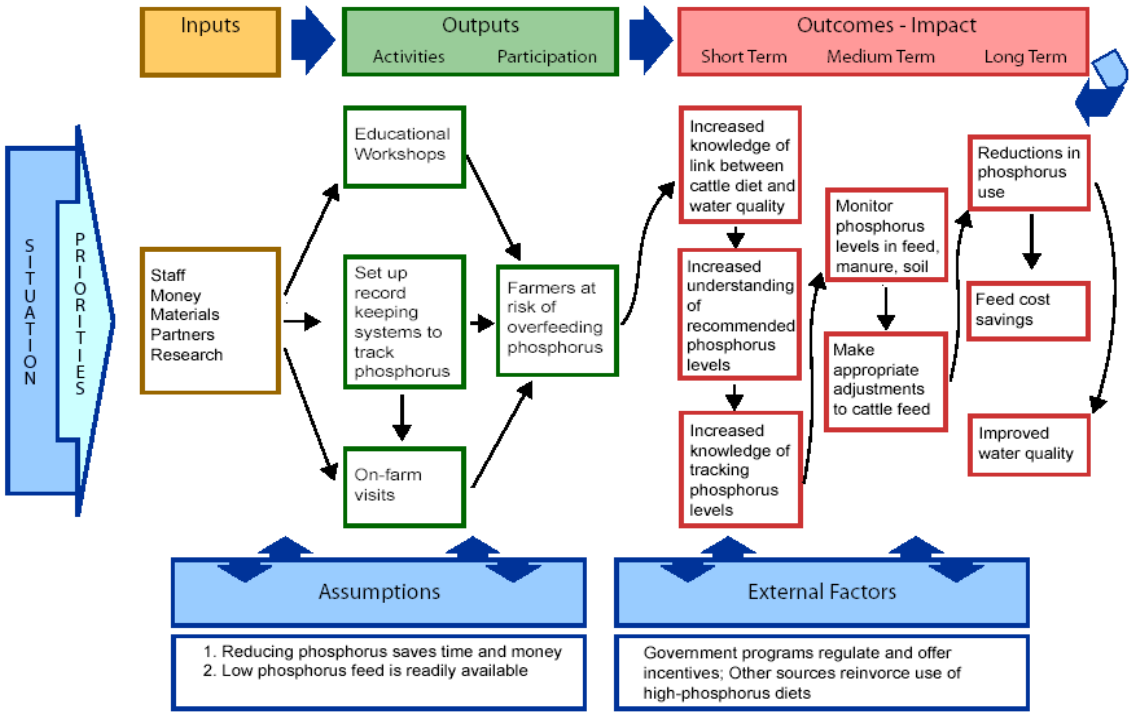
Did all parents participate as intended? Who did/not not? Did they attend all sessions?...support groups? Level of satisfaction?

To what extent did knowledge and skills increase? For whom? Why? What else happened?

To what extent did behaviors change? For whom? Why? What else happened?

To what extent is stress reduced? relations improved?

What do you want to know about your program?



Evaluation: What to measure – when?

What amount of $ and time were invested?

What did the program actually consist of?

Who actually participated in what? Did this meet our target?

To what extent did knowledge and skills increase?

To what extent did practices change?

To what extent did phosphorus reduce? Savings accrue to farmers?

Identify indicators

- How will you know it when you see it?
- What will be the evidence?
- What are the specific indicators that will be measured?

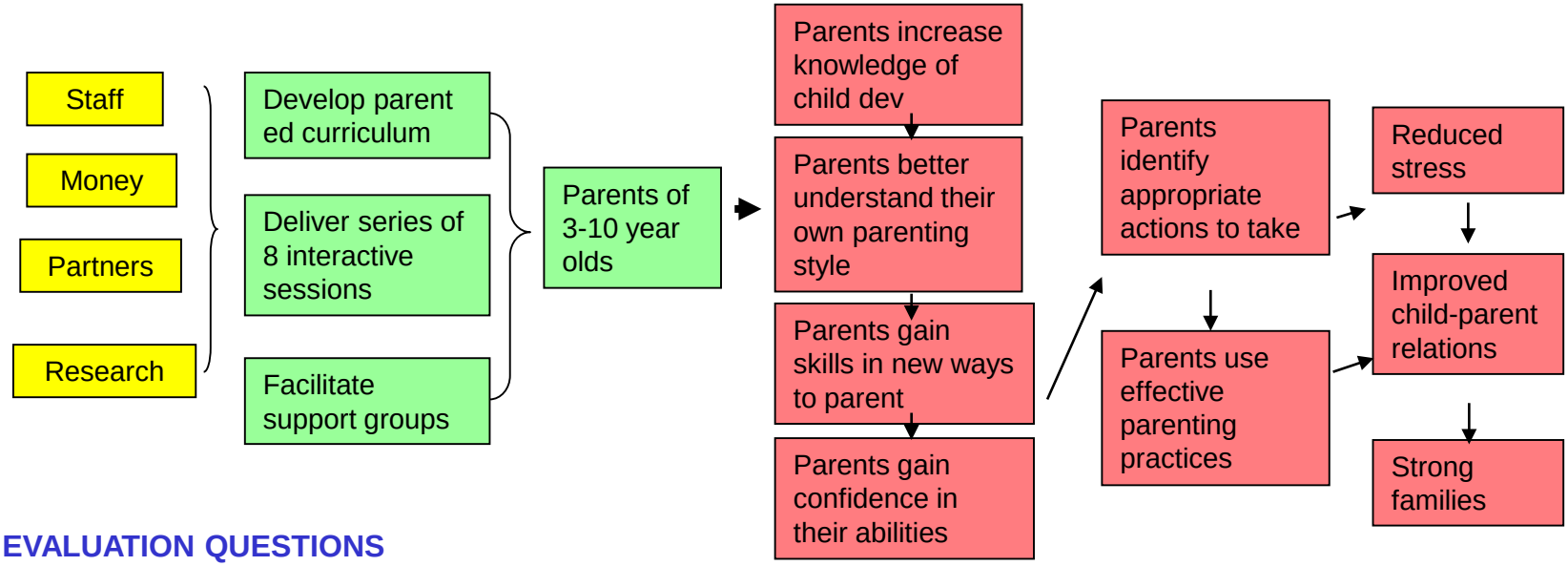
- Often expressed as #, %
- Can have qualitative indicators as well as quantitative indicators

Logic model with indicators for Outputs and Outcomes

Outputs | **Outcomes**

Program implemented →	Targeted farmers →	Farmers learn →	Farmers practice new techniques →	Farm profitability increases
Number of workshops held Quality of workshops	Number and percent of farmers attending	Number and percent who increase knowledge	Number and percent who practice new techniques	Number and percent reporting increased profits; amount of increase

Parent Education Example: Evaluation questions, indicators



EVALUATION QUESTIONS

What amount of $ and time were invested?	How many sessions were held? How effectively? #, quality of support groups?	Who/how many attended/did not attend? Did they attend all sessions? Supports groups? Were they satisfied – why/why not?	To what extent did knowledge and skills increase? For whom? Why? What else happened?	To what extent did behaviors change? For whom? Why? What else happened?	To what extent is stress reduced? To what extent are relations improved?

INDICATORS

# Staff $ used # partners	# Sessions held Quality criteria	#,% attended per session Certificate of completion	#,% demonstrating increased knowledge/skills Additional outcomes	#,% demonstrating changes Types of changes	#,% demonstrating improvements Types of improvements

Typical activity indicators to track

- Amount of products, services delivered
- #/type of customers/clients served
- Timeliness of service provision
- Accessibility and convenience of service
  - Location; hours of operation; staff availability
- Accuracy, adequacy, relevance of assistance
- Courteousness
- Customer satisfaction

For example:

# of clients served

# of consultations

# of workshops held

# of attendees

# of referrals

Quality of service

Methods of data collection

Sources of Information

- Existing data
  - Program records, attendance logs, etc
  - Pictures, charts, maps, pictorial records
- Program participants
- Others: key informants, nonparticipants, proponents, critics, staff, collaborators, funders, etc.

Data Collection Methods

- Survey
- Interview
- Test
- Observation
- Group techniques
- Case study
- Photography
- Document review
- Expert or peer review

Data collection plan

Questions	Indicators	Data collection			
		Sources	Methods	Sample	Timing

Logic model and reporting