



# Every Picture Tells a Story—*Graphic Depictions and Planning and Evaluation*

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Session 7: Wednesday AM



## Today...

- Be able to define and describe how to use key graphic techniques/approaches:
  - ☐ Logic models
  - ☐ Logical framework (Logframes)
  - ☐ Process maps/CPM
  - ☐ Flow charts
- Be able to construct high-level versions of each for simple cases



# Every Picture Tells a Story

## Defining Terms



### Defining Evaluation

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- **Evaluation** is the systematic investigation of the merit, worth, or significance of any “*object*”

*Michael Scriven*

- **Program** is any organized public health action/activity implemented to achieve some result

## These must be integrated...

- Continuous Quality Improvement (CQI) cycle.

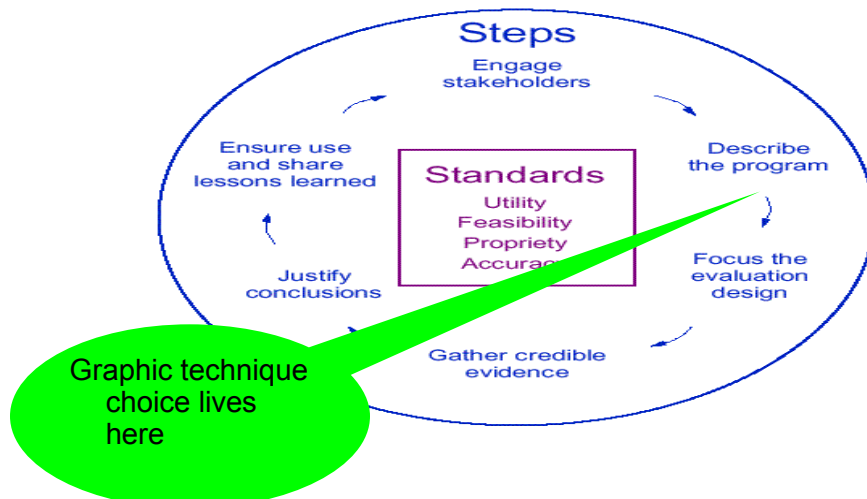
- **Planning**—*What* actions will best reach our goals and objectives.
- **Performance measurement**—How are we doing?
- **Evaluation**—*Why* are we doing well or poorly?



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## Framework for Program Evaluation

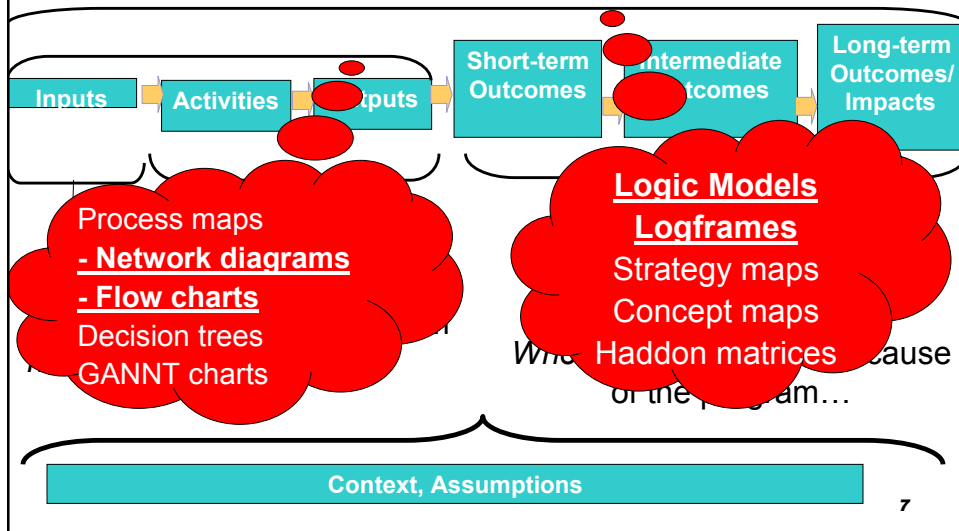
FIGURE 1. Recommended framework for program evaluation



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# Common Graphic Techniques



Every Picture Tells a Story

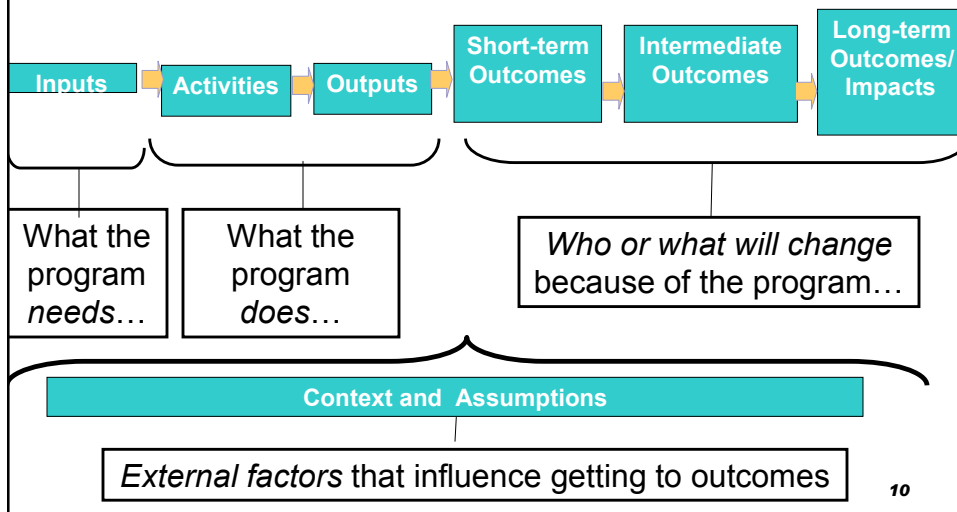
Logic Models

# Logic Models and Program Description

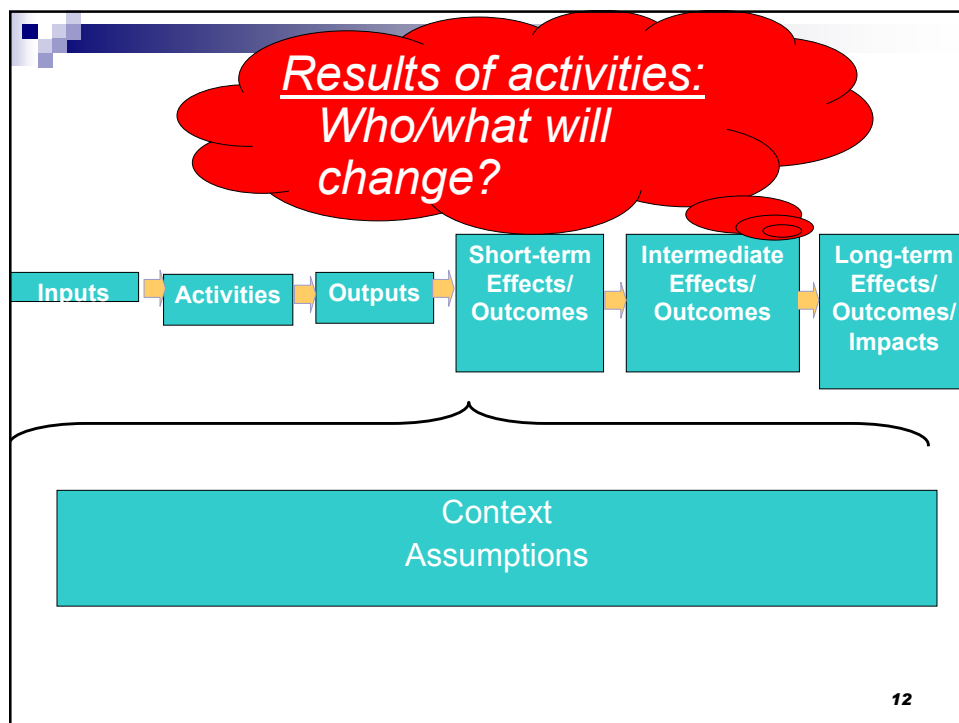
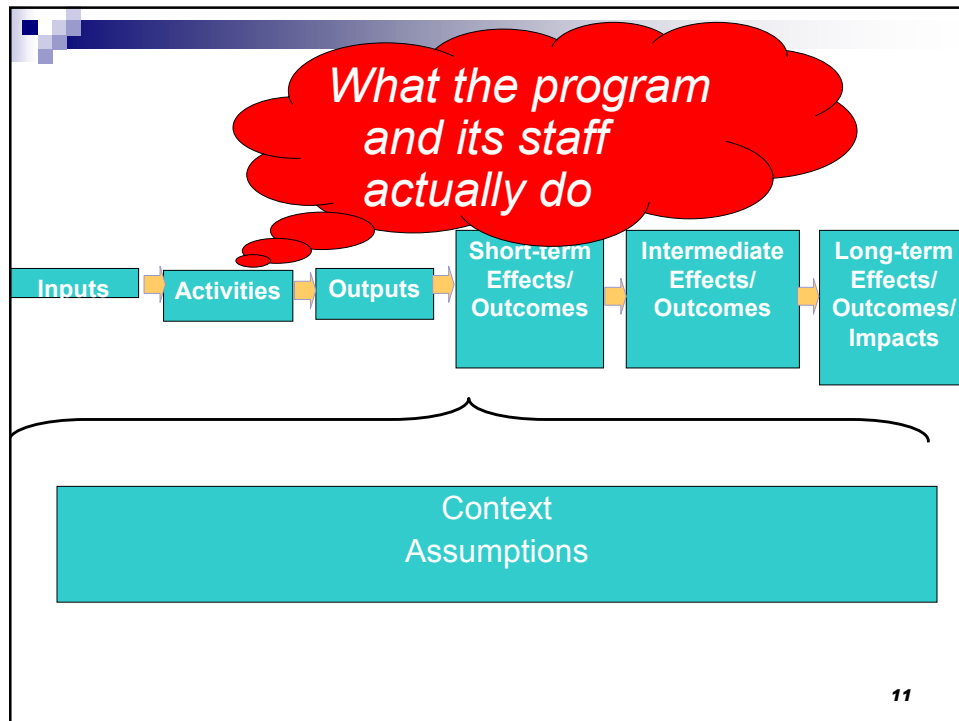
- **Logic Models** : *Graphic depictions of the relationship between your program's activities and its intended effects*

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## Typical Components of a Project/Program



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## Constructing Logic Models: *Identify Activities and Outcomes by....*

1. Examining program descriptions, MISSIONS, VISIONS, PLANS, ETC and extracting these from the narrative, **OR**
2. ***Reverse mapping***—Starting with outcomes, ask “how to” in order to generate the activities which produce them, **OR**
3. ***Forward mapping***—Starting with activities, ask “so what” in order to generate the outcomes that are expected to result

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## Then...Do Some Sequencing...

- Divide the ***activities*** into 2 or more columns based on their ***logical*** sequence. *Which activities have to occur before other activities can occur?*
- Do same with the ***outcomes***. *Which outcomes have to occur before other outcomes can occur?*

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## Example: Listing Activities and Outcomes for Lead Poisoning

### Activities

- Outreach
- Screening
- Case management
- **Referral** for medical tx
- Identification of kids with elevated lead (EBLL)
- Environmental assessment
- **Referral** for env clean-up
- Family training

### Effects/Outcomes

- Lead source identified
- **Families** adopt in-home techniques
- **Providers** treats EBLL kids
- **Housing Authority** eliminates lead source
- *EBLL reduced*
- *Developmental "slide" stopped*
- *Q of L improved*

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### Global Logic Model: Childhood Lead Poisoning Program

#### Early Activities

*If we do...*

Outreach

Screening

ID of elevated kids

#### Later Activities

*And we do...*

Case mgmt of EBLL kids

Refer EBLL kids for medical treatment

Train family in in-home techniques

Assess environment of EBLL child

Refer environment for clean-up

#### Early Outcomes

*Then....*

EBLL kids get medical treatment

Family performs in-home techniques

Lead source identified

Environment gets cleaned up/Lead source removed

#### Later Outcomes

*And then...*

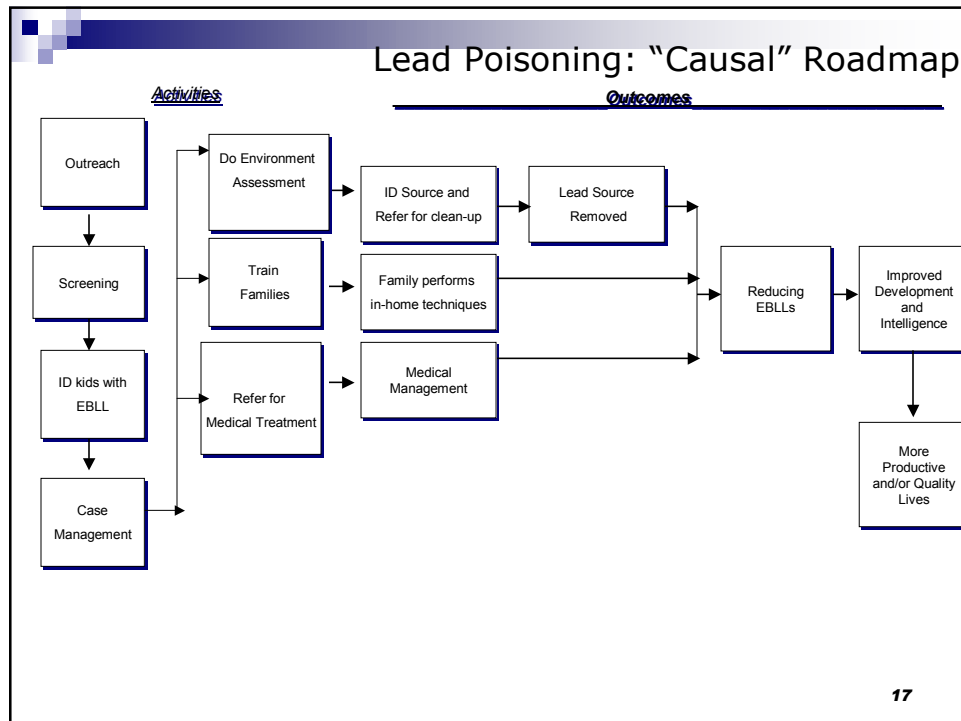
EBLL reduced

Develop'l slide stopped

Quality of life improves

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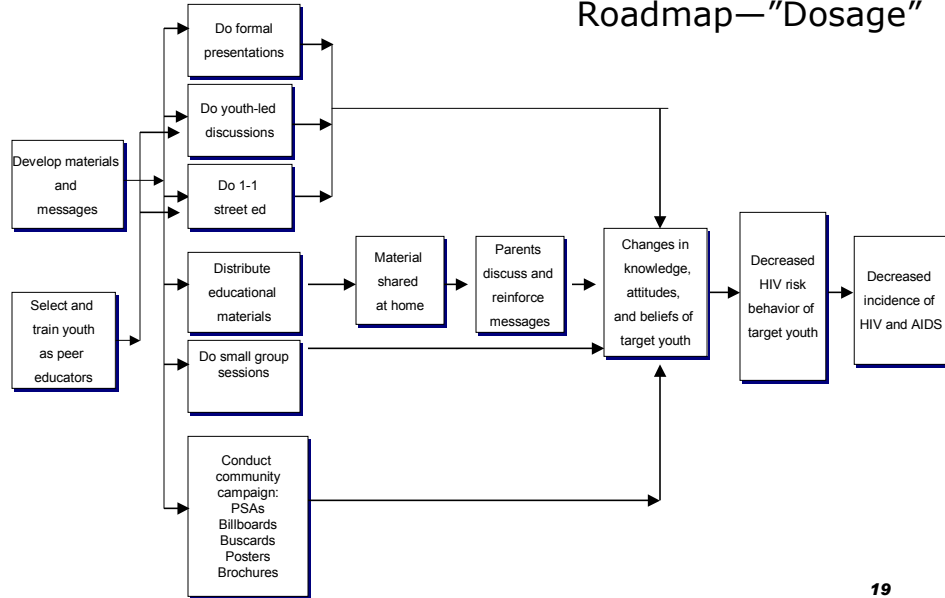




Global Logic Model: Eastside HIV/AIDS Prevention			
Early Activities <i>If we ...</i>	Later Activities <i>And we...</i>	Early Outcomes <i>Then....</i>	Later Outcomes <i>And then...</i>
Develop materials and messages  Select and train youth as peer educators	Do formal classroom presentations Do small group classroom discussions  Do youth-led community ed Do 1-1 street ed Distribute educational material Conduct community campaign: -Buscards/billboards - Posters/brochures	Educational materials are brought home and shared	Changes in youth knowledge, attitudes and beliefs  Reduced HIV risk behavior  Reduced incidence of HIV

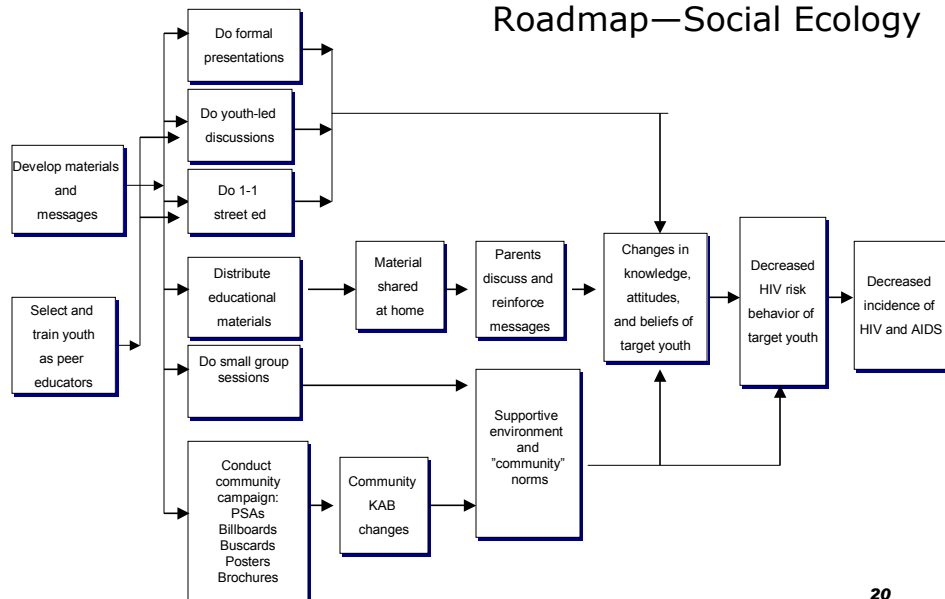
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## Eastside HIV/AIDS Prevention Program: "Causal" Roadmap—"Dosage"

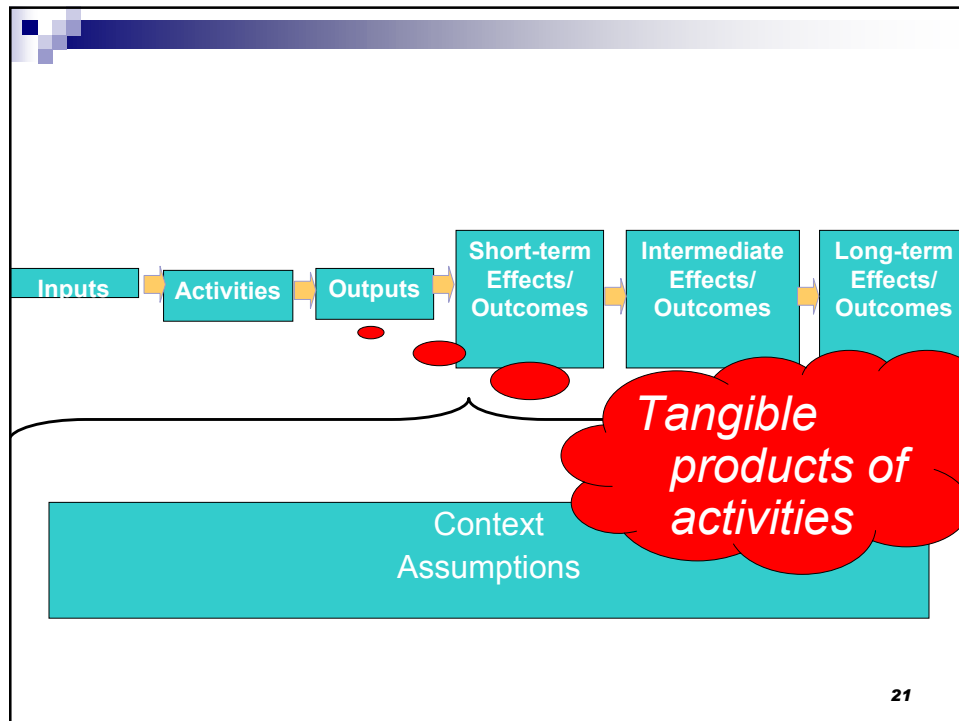


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## Eastside HIV/AIDS Prevention Program: "Causal" Roadmap—Social Ecology

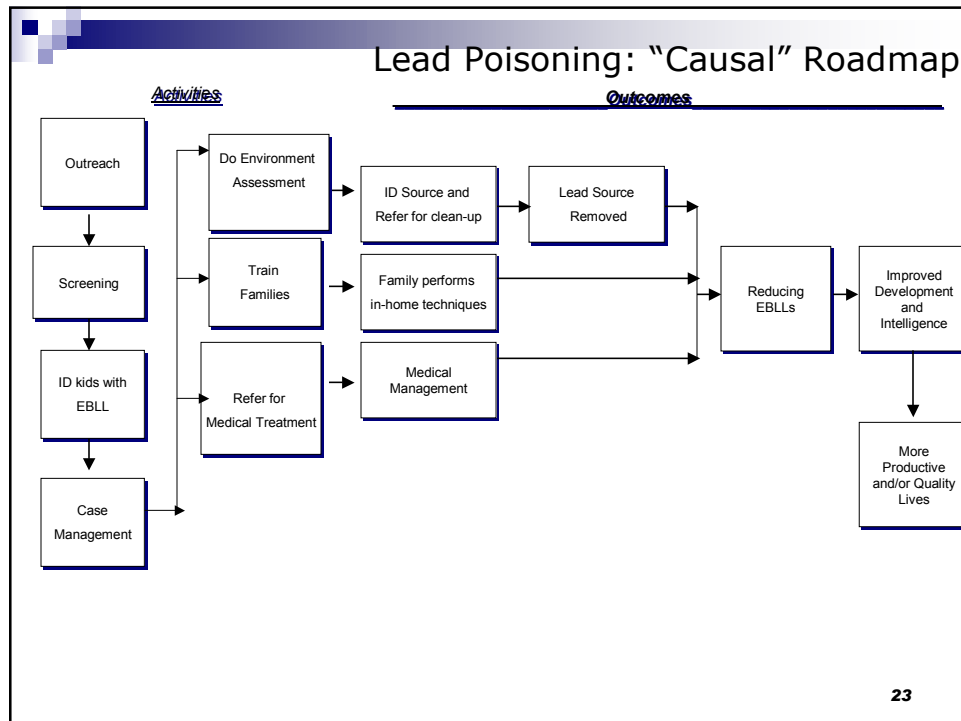


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## Lead Poisoning: “Traditional” Outputs

- Pool (#) of screened kids
- Pool (#) of eligible kids
- Referrals (#) to medical treatment providers
- Pool (#) of assessed homes
- Referrals (#) for clean-up

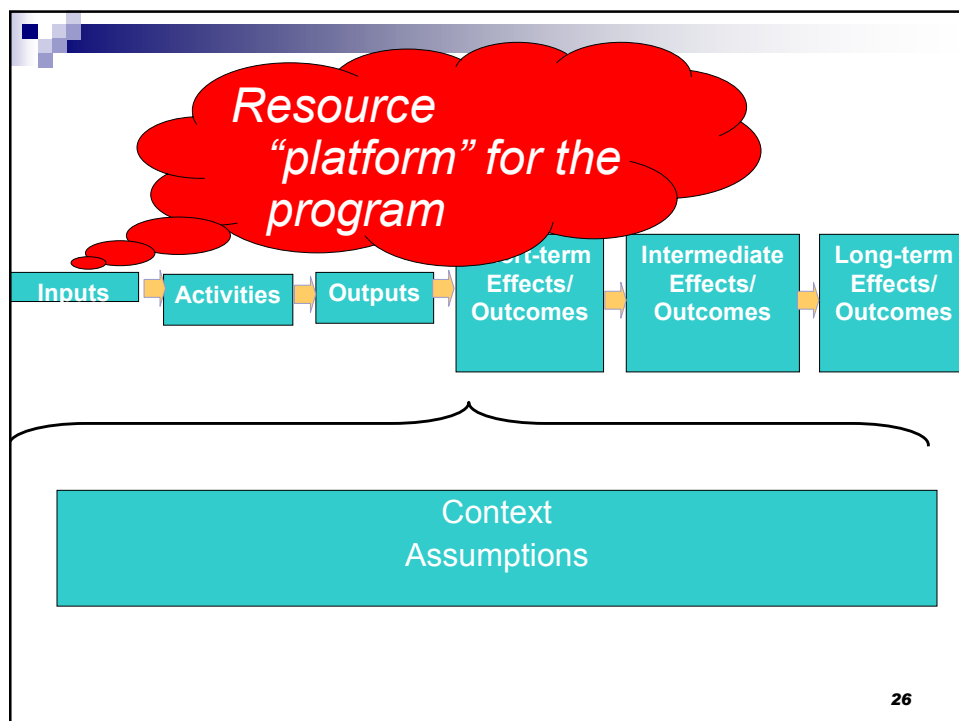


- ### Lead Poisoning: "Upgraded" Outputs
- Pool (#) of screened kids (*meeting likely risk profile*)
  - Pool (#) of eligible kids (*with lead level >XXd/ul*)
  - Referrals (#) to (*qualified or willing*) medical treatment providers
  - Pool (#) of assessed (*"leaded"*) homes
  - Referrals (#) for clean-up (*to qualified or willing orgs*)
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## Eastside: Outputs

1. # of peer educators who have completed training; # who meet demog of targeted at risk youth
2. % of busses with pre-tested buscards; % of “right” routes with busses with buscards
3. # of 1:1 street encounters with kids meeting high risk profile; % of street encounters with an “intake” or profile completed
4. # of materials distributed directly to parents; % of materials pre-tested for acceptability with parents

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## Lead Poisoning: Sample Inputs

- Funds
- Trained staff
- Relationships with orgs  
for med tx and env clean-  
up
- Legal authority to screen

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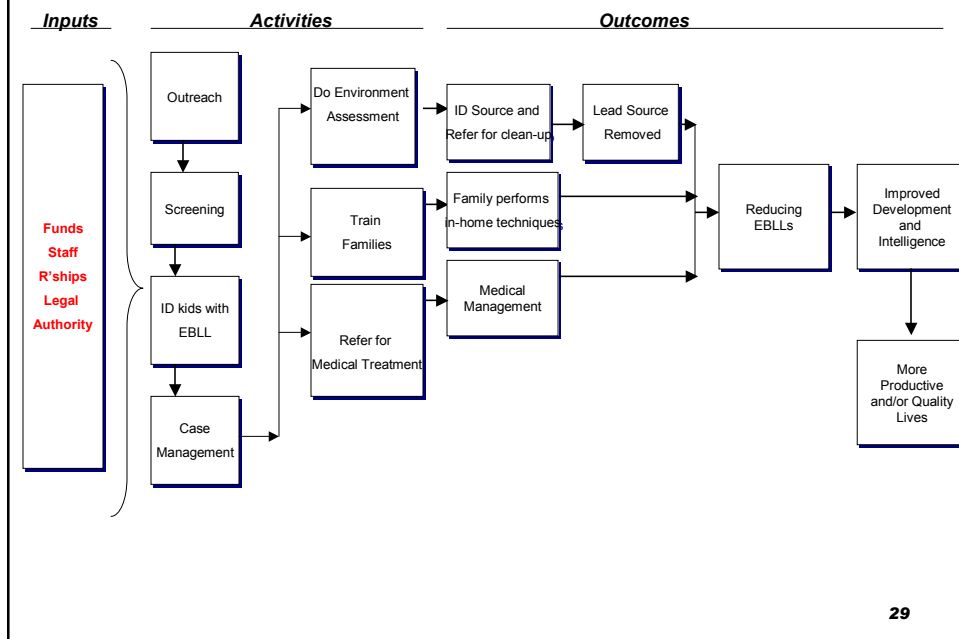


## Eastside: Inputs

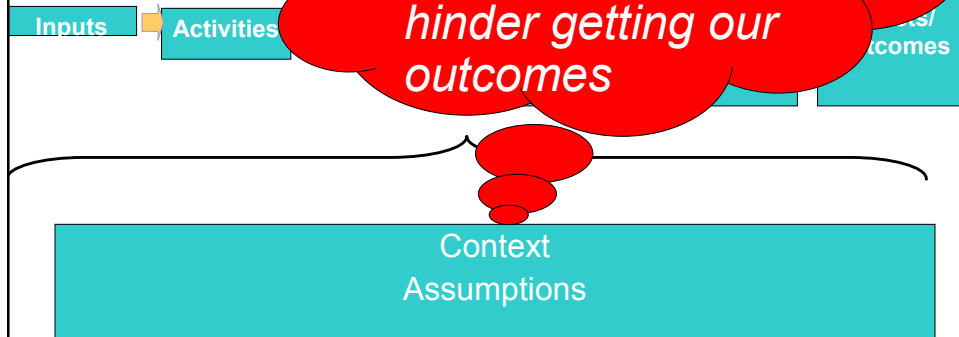
1. Approval from school board
2. Approval from buscompany
3. Prior (sufficient) info on community  
norms, demog, values
4. Prior (sufficient) inventory of relevant  
and useful materials

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## Lead Poisoning: "Causal" Roadmap



**Moderators:**  
Contextual factors  
that will facilitate or  
hinder getting our  
outcomes



## Contextual Factors

- Political
- Economic
- Social
- Technological

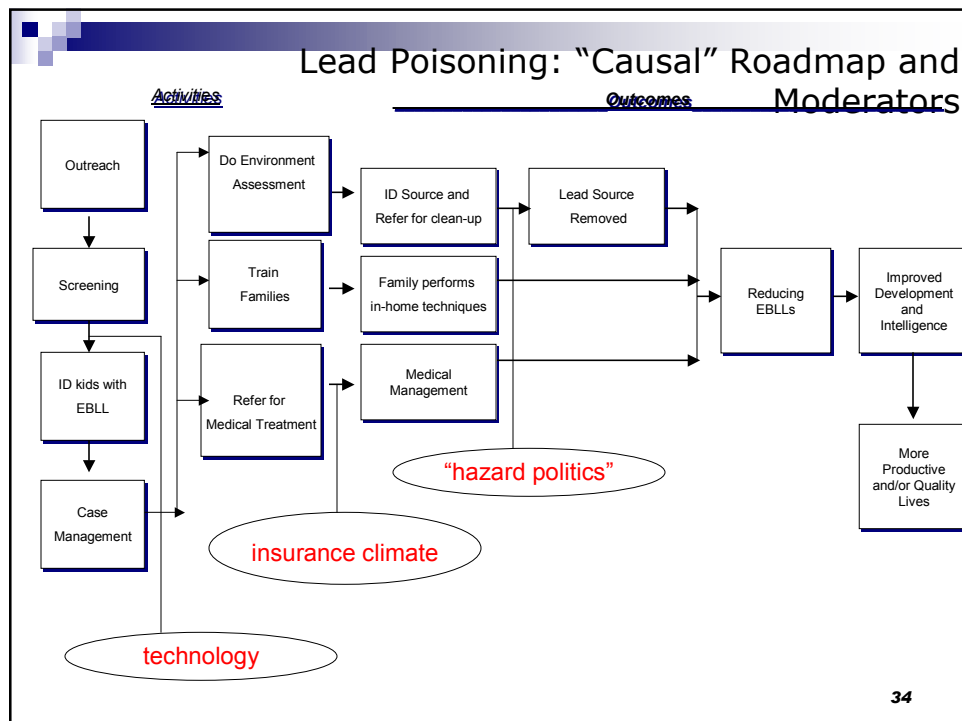
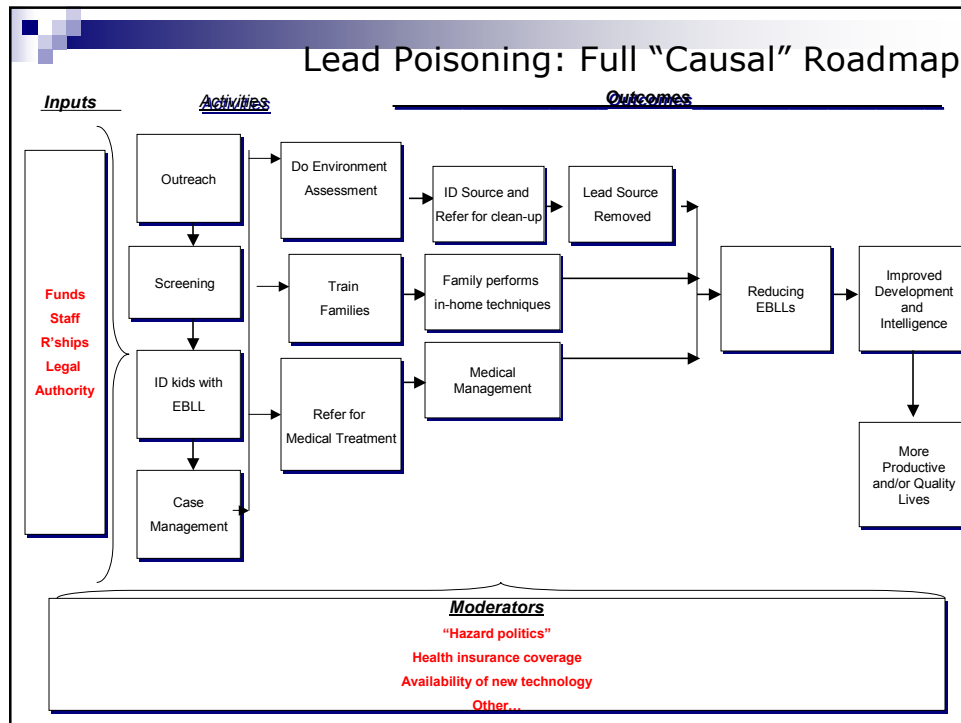
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## Moderators—Lead Poisoning

- Political—*“Hazard” politics*
- Economic—*Health insurance*
- Technological—*Availability of hand-held technology*

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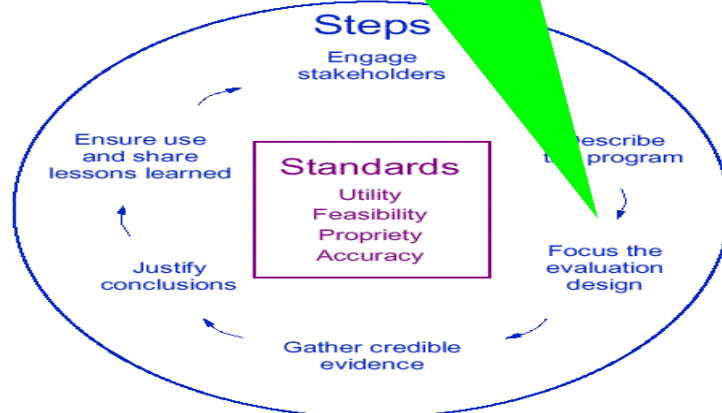
## Eastside: Moderators

1. Political:
  1. Parent-school board/school r'ship
  2. Health dept/school r'ship
  3. Testing mania
2. Economic:
  1. Car/bus ridership
3. Social
  1. Norms/values about risk behaviors and solutions
  2. Literacy/language
4. Technological/Other
  1. Condom/clean needle access

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## Framework for Program Evaluation

FIGURE 1. Recommended framework for program evaluation



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## Utility Questions

- **Purpose:** Toward what end is the evaluation being conducted?
- **User:** Who wants the info and what are they interested in?
- **Use:** How will they use the info?

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## Feasibility Questions: *“Reality Checking” the Focus*

- **Questions that pass the “utility” test may be infeasible to include because:**
  - **Stage of Development:** How long has the program been in existence?
  - **Program Intensity:** How intense is the program? How much impact is reasonable to expect?
  - **Resources:** How much time, money, expertise are available?

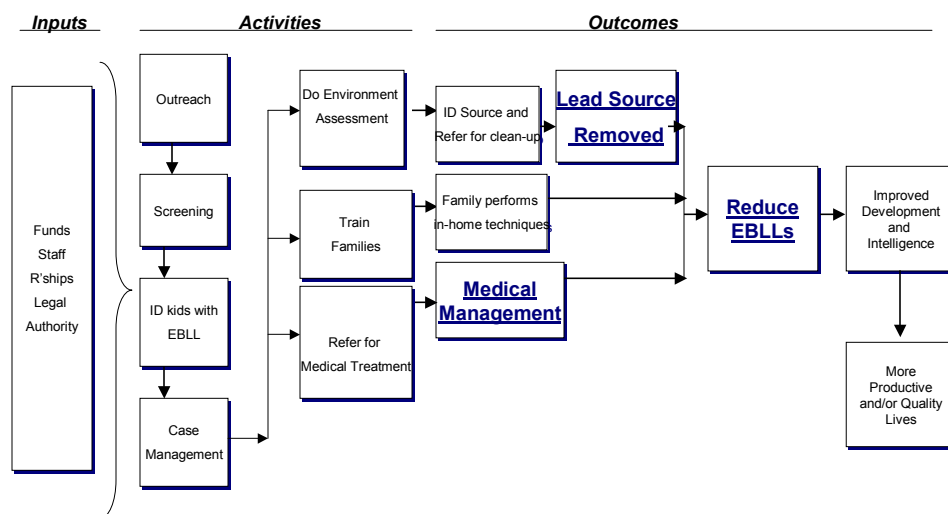
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## (Some) Potential Purposes/ Uses

- **Show accountability**
- Test program implementation
- “Continuous” program improvement
- Increase the knowledge base
- Other...
- Other...

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## Lead Poisoning: “Causal” Roadmap



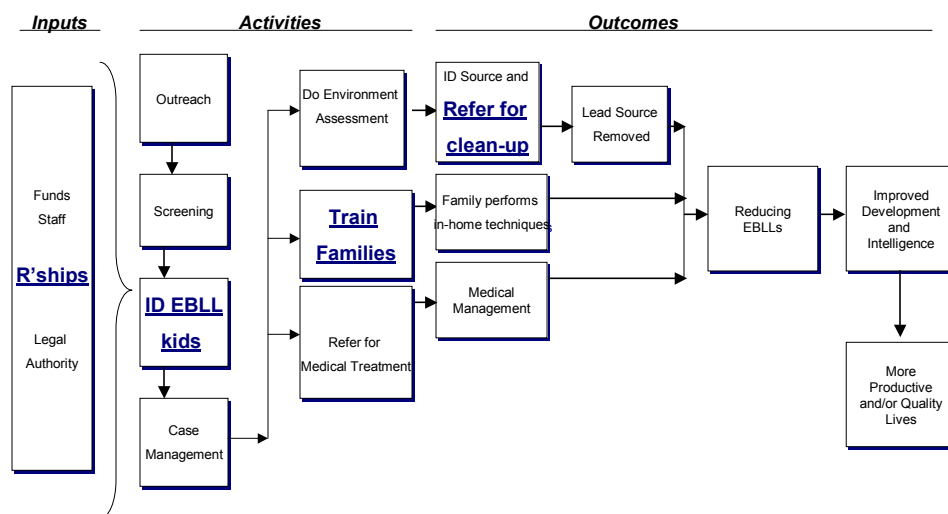
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## (Some) Potential Purposes/ Uses

- Show accountability
- **Test program implementation**
- “Continuous” program improvement
- Increase the knowledge base
- Other...
- Other...

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## Lead Poisoning: “Causal” Roadmap



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## Evaluation Focus: Lead Poisoning

Project Structure	Indicators	Data Source	By When/By Whom
O: Sustained reduction in EBLL in children	XX% reduction in the number of children ages XX-XX with BLL exceeding 10 ul	County surveillance data	
O: Leaded environments are cleaned up	XX% of homes identified with a lead problem are "cleaned up"	Housing dept logs	
O: EBLL children receive medical management	XX% of EBLL kids with BLL <25 are in treatment with qualified MD	Health dept case management logs	
A: Refer for clean-up	Number of leaded homes referred	Health dept logs	
A: Train families	Number of trainings with EBLL families	Health dept logs	
A: ID EBLL kids	Number of kids with EBLL >10ul	Screening logs, surveillance reports, lab reports	
I: Relationships with env and med community	Number of providers able and willing to see EBLL kids Number of agencies able to do timely lead clean-up	Health dept logs Health dept logs	

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## A Logic Model Would Be (Most) Helpful When:

- Thinking through options for how to address a new problem
- Clarity on program "logic"/"theory"
- Clarity on sequencing of outcomes
- Desire to bring stakeholders to consensus on program purpose and evaluation
- Frame decisions about evaluation focus
- Other?

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# Every Picture Tells a Story

Process Mapping and Project Management

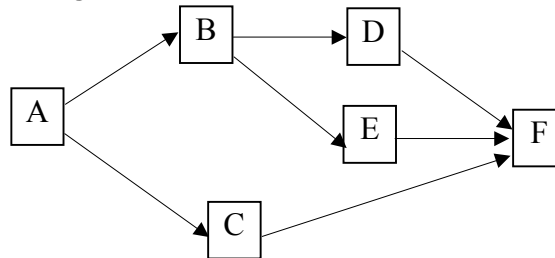


## Process Mapping

- Structural analysis of a process flow, by distinguishing how work is actually done from how it should be done. Depicts main activities, information flows, interconnections, and measures are depicted as a graphic representation, allowing an observer to 'walk-through' the whole process and see it in its entirety.

*Source: Business Dictionary.com*

## What is a Project?

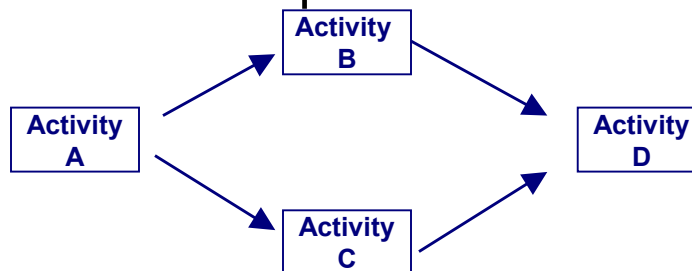


1. Comprised of activities (tasks), requiring unique planning, to create a unique product/service.
2. Important inter-relationships among the activities.
3. Limited, finite life span, or duration.

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## Project Network Diagrams: Activity Interrelationships



### Start-to-Finish Relationships:

- Activity A must finish before Activity B or Activity C can start.
- **Both** B and C must finish before D can start.
- “Project” is not completed until all four activities finish.

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## Why Use This Approach?

1. Forces discussion of activity interdependencies.
2. Reinforces focus on meeting project objectives.
3. IDs activities that can be executed in parallel
4. IDs missing activities
5. Provides
  - Consistent framework for planning.
  - Logical basis for determining project duration.
  - Framework for compressing project duration.

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## Drawing the Project Network Diagram

1. Draw from left to right: Place → from predecessor activity → successor activity
2. Include only “direct predecessors” for each activity (if  $A \rightarrow B$  and  $B \rightarrow C$ , then no need to show  $A \rightarrow C$ ).
3. Use single arrow for each relationship – do not split/ combine arrows.
4. Crossing lines is okay (use an “overpass” sign to avoid confusion)
5. No need to “time- scale” the network diagram.

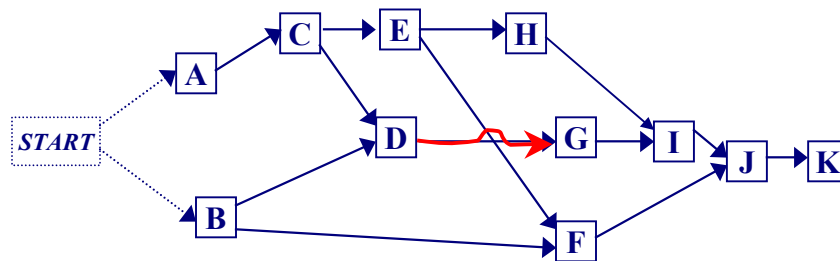
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## Exercise: Social Marketing Plan

This project involves the development and pilot demonstration of a plan for “social marketing” of a nutrition and exercise program for hard-to-reach youth in rural areas...The project will commence with **ACTIVITY A** (signing of the approval by the Executive Director) and **ACTIVITY B** (budget approval for the marketing plan). **ACTIVITY C** (the design of the promotion plan) can follow immediately after ACTIVITY A. When both ACTIVITY B and ACTIVITY C are complete, **ACTIVITY D** (the promotion survey) can be conducted. **ACTIVITY E** (the promotion plan conceptualization and brainstorming sessions) can commence after ACTIVITY C is complete. **ACTIVITY F** (contracting with a local agency) can start after ACTIVITY B and Activity E are complete. **ACTIVITY G** (the analysis of survey data) can commence after ACTIVITY D is complete. **ACTIVITY H** (the writing of the draft promotion plan) can commence after ACTIVITY E. **ACTIVITY I** (promotion materials development) can be accomplished after ACTIVITY G and ACTIVITY H are both complete. **ACTIVITY J** (marketing plan final draft and presentation to the advisory committee) can be undertaken after ACTIVITY F and ACTIVITY I are complete. **ACTIVITY K** (pilot testing of the promotion plan) can commence after Activity J is complete.

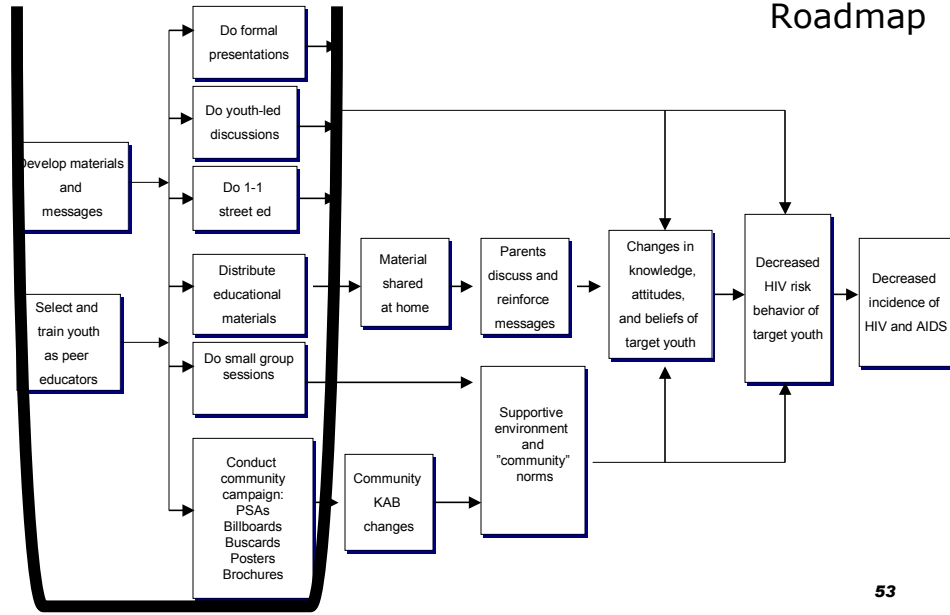
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## Solution – Project Network Diagram: Social Marketing Plan



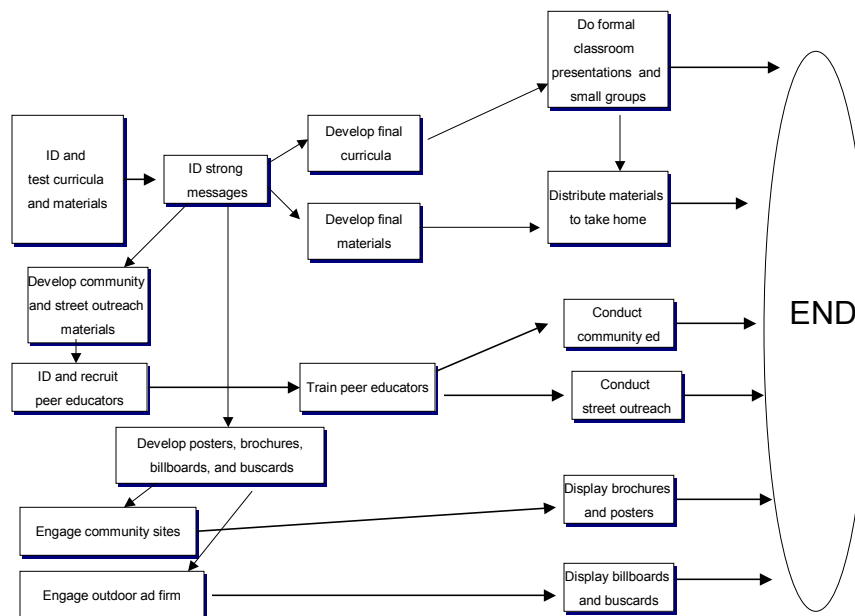
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## Eastside HIV/AIDS Prevention Program: "Causal" Roadmap



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## Project Network Diagram—Eastside



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## Determining Critical Path

- Critical Path: The connected series of activities whose combined duration represents the longest path through the network.
- Why It Matters:
  - Determines the project duration.
  - If critical path activity is delayed, project is delayed.
  - To reduce project duration, must reduce time along critical path.
  - CP activities are leverage points

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## Critical Path—Key Definitions

**ES: Estimated Start**  
**D: Duration**  
**EF: Estimated Finish**  
 **$ES + D = EF$**

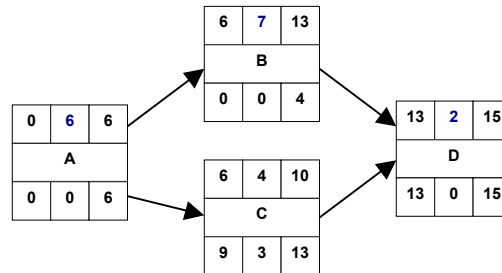
ES	D	EF
Activity		
LS	TS	LF

**LS: Latest Allowable Start**  
**TS: Total Slack (Float)**  
**LF: Latest Allowable Finish**

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## Project Durations and Critical Path

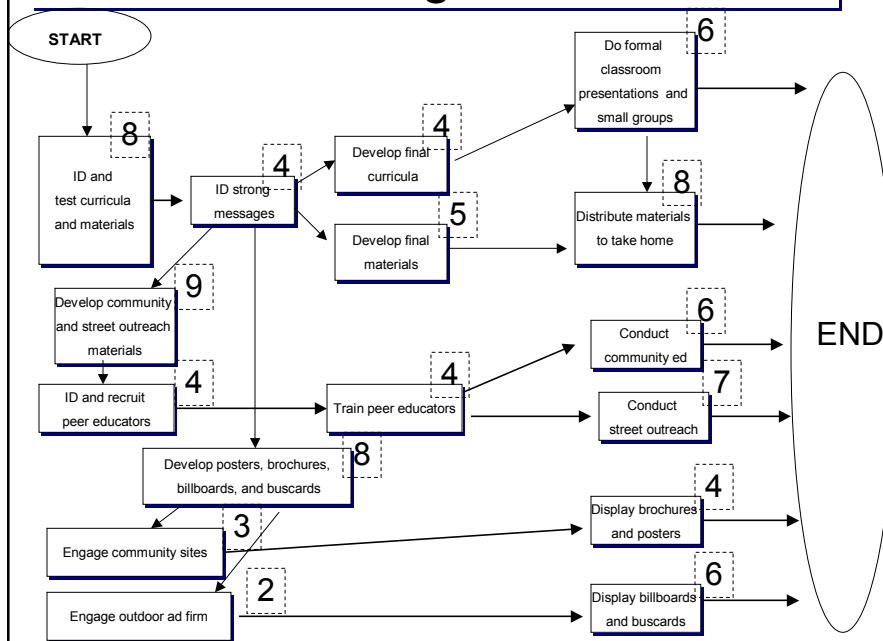
ES	D	EF
Activity		
LS	TS	LF



- Critical path activities A→B→D.
- CP = 15 days (6 + 7 + 2 = 15).
- Activities B and C can be undertaken concurrently.

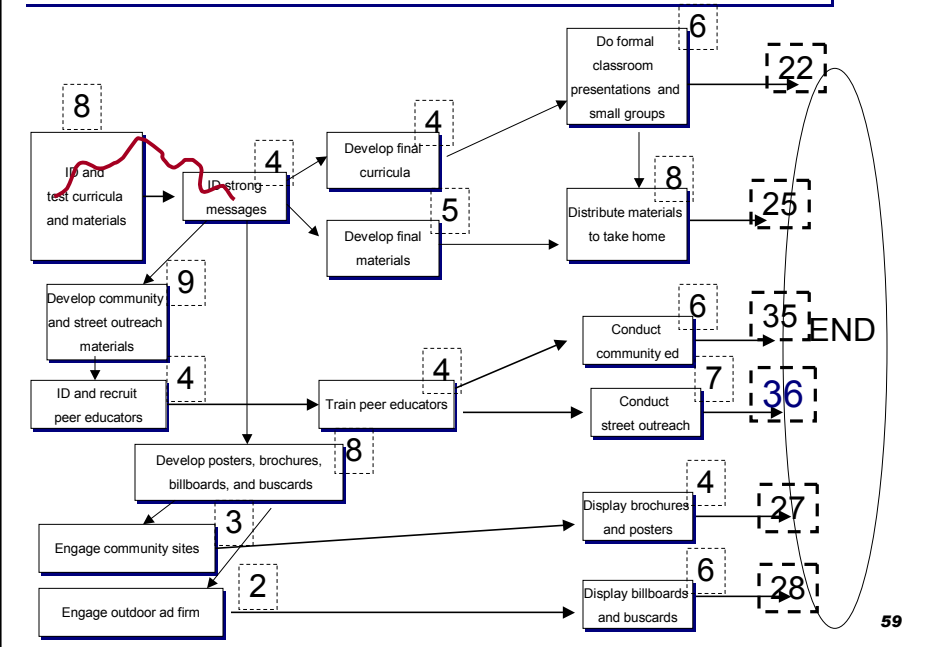
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## Critical Path Diagram—Eastside

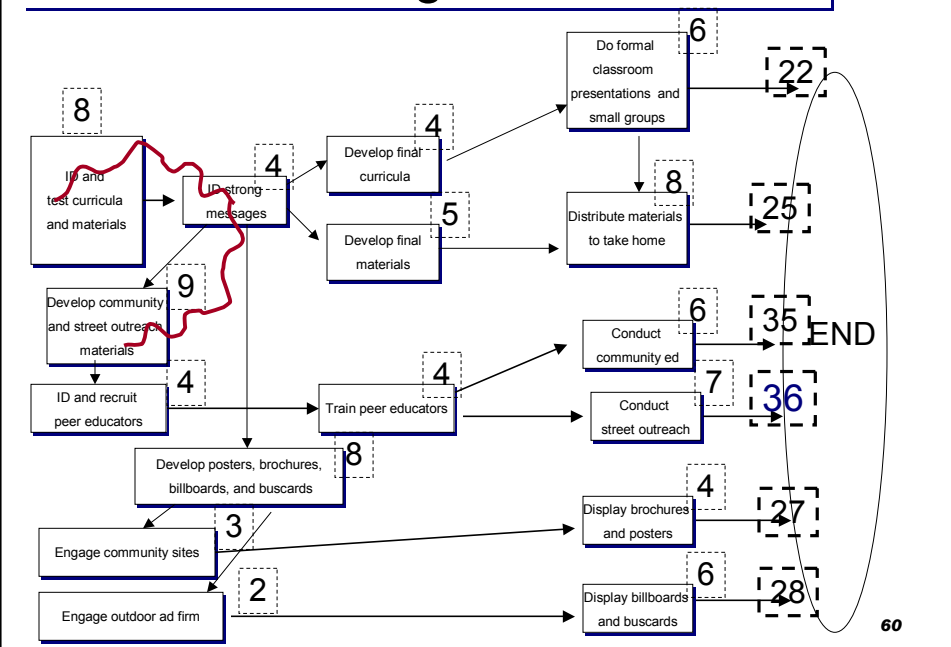


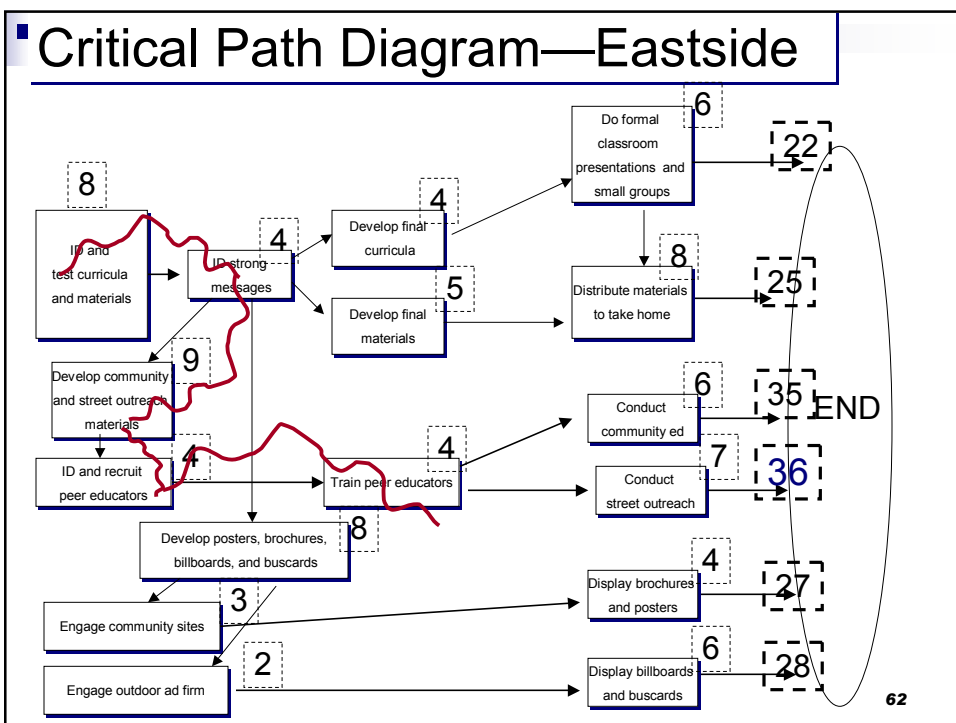
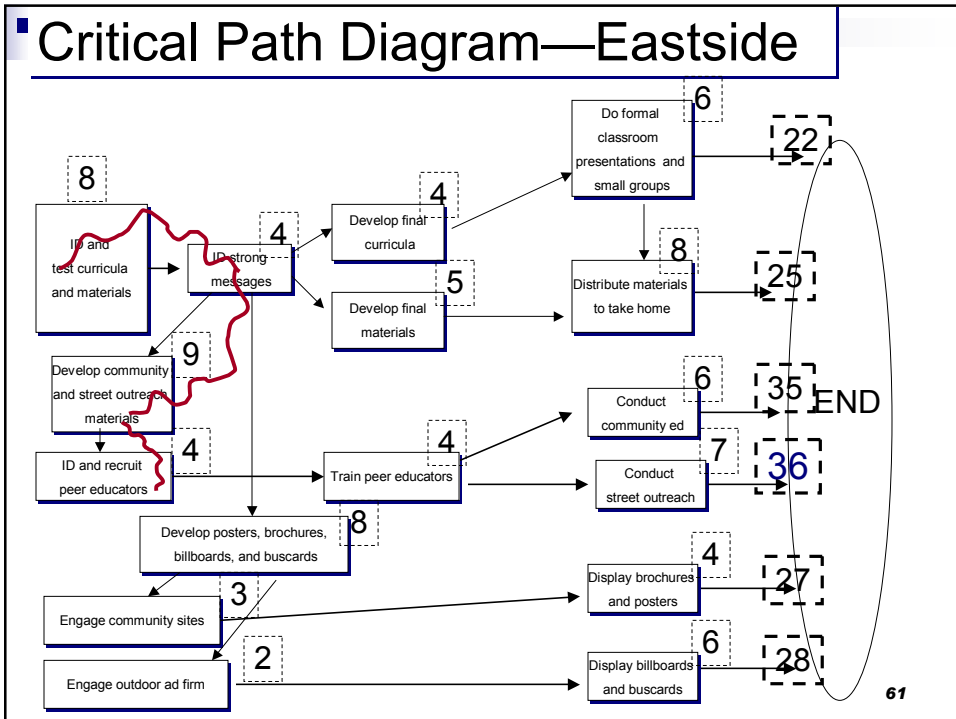
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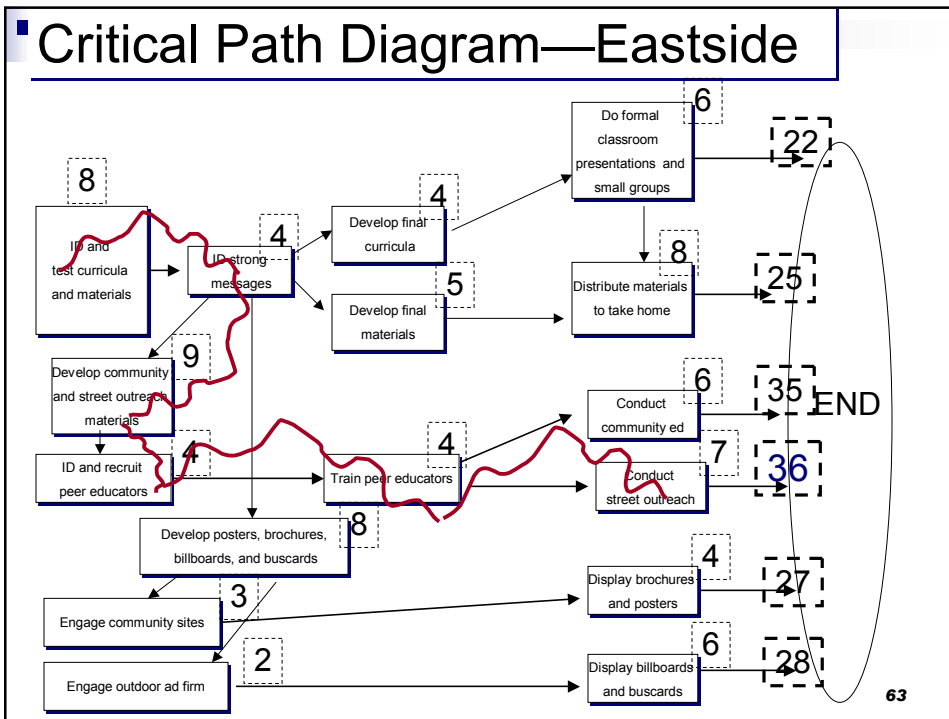
## Critical Path Diagram—Eastside



## Critical Path Diagram—Eastside







- ### Network Diagrams/CPM Would Be (Most) Helpful When:
- Multi-faceted program
  - Much interaction/interdependence among program activities
  - Resources are scarce and/or time is of the essence
  - Need to think through how to understand, control, and modify program duration
  - Other?





# Every Picture Tells a Story

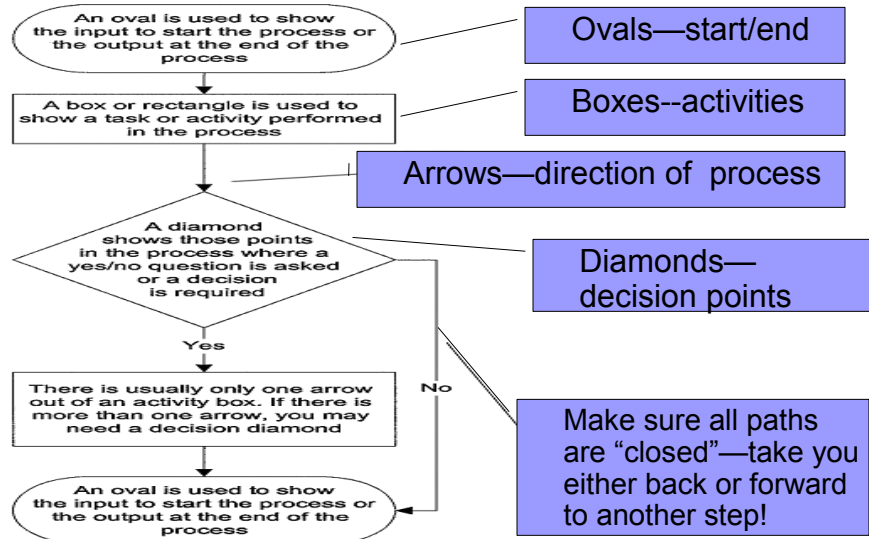
## Flow Charts



### What is a Flow Chart?

- A pictorial representation describing the steps of a process in detail including inputs and intended outputs, key decision points, and alternative actions for each branch of a decision point.

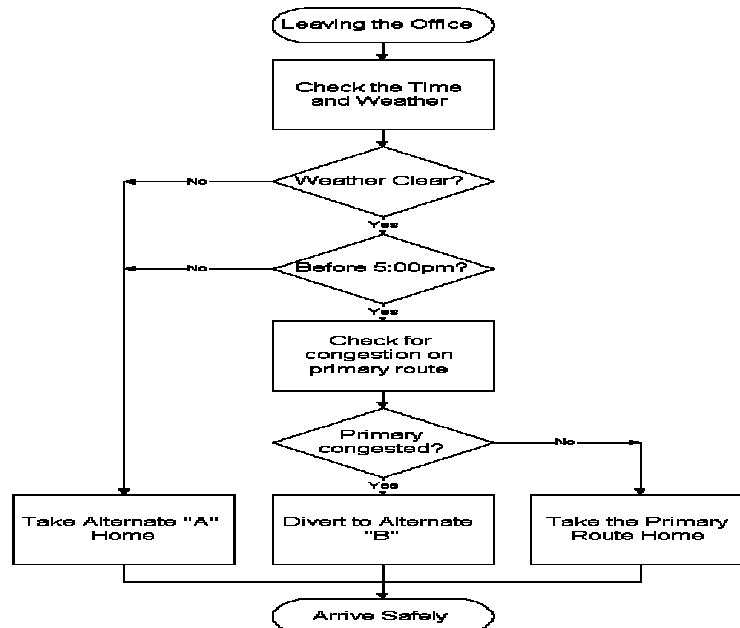
# Flow Chart—Standard Symbols



Source: Iowa State University, Facilities and Management Planning

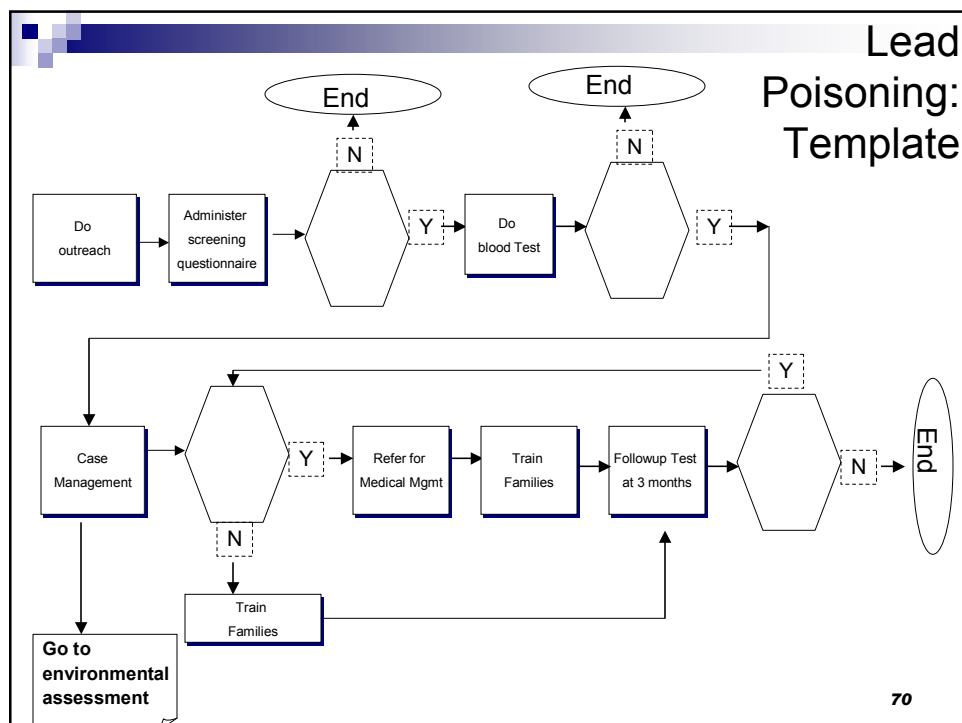
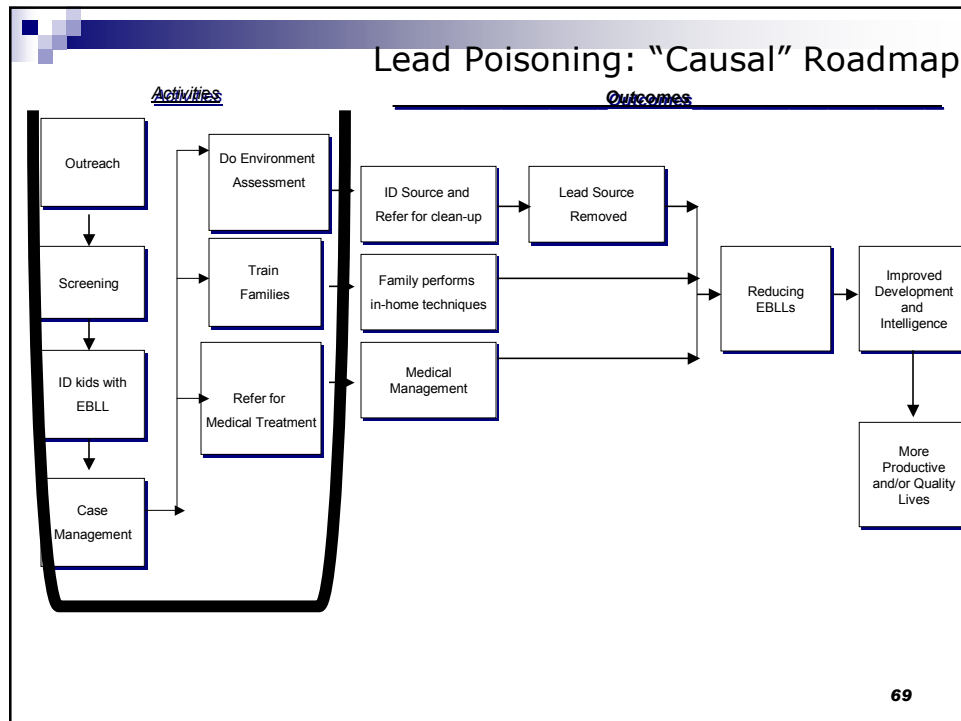
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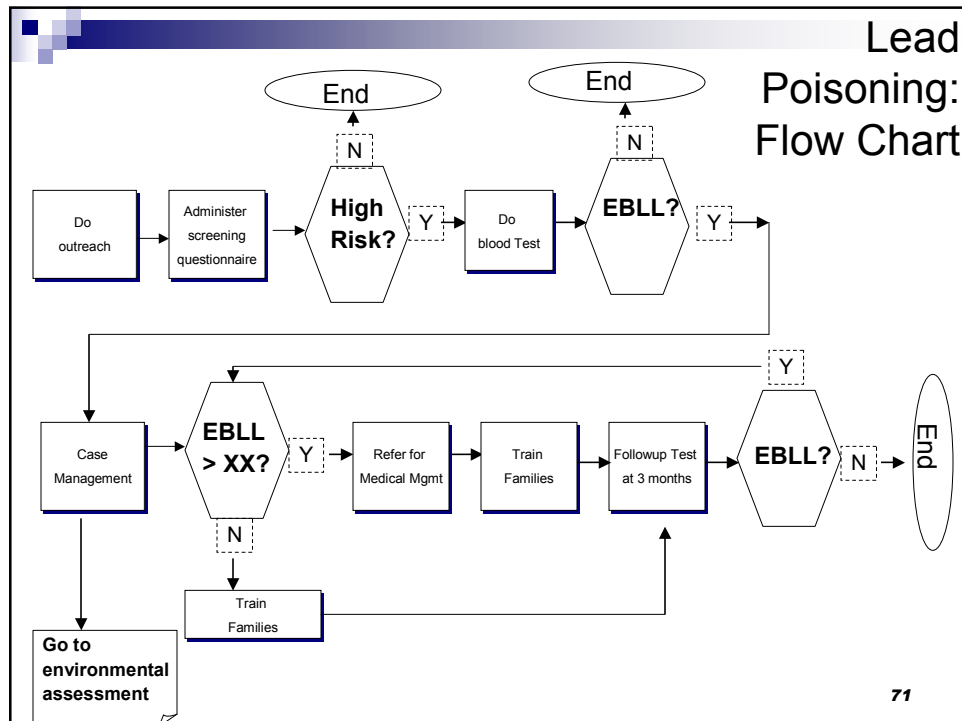
## The Best Way Home



Source: <http://deming.eng.clemson.edu/pub/tutorials/qctools/flowm.htm>

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## Flow Charts Would Be (Most) Helpful When:

- Much interaction/interdependence among program activities
- Sequencing matters
- Lots of “decision nodes”
- Need clarity on next steps for all instances of each decision
- Other?



# Every Picture Tells a Story

Logical Framework Matrices  
(Logframes)



## What is the Logical Framework Approach (LFA)?

- A structured and logical means for planning, implementing, monitoring and evaluating projects, programs and institutional workplans

## Origins of LFA

- USAID in 1960s
- Addressing related issues:
  - Projects failed to make impacts
  - Projects could not name intended impacts
  - Busted budgets and timelines
  - Monitoring and evaluation done in isolation from stakeholders and intended target audiences

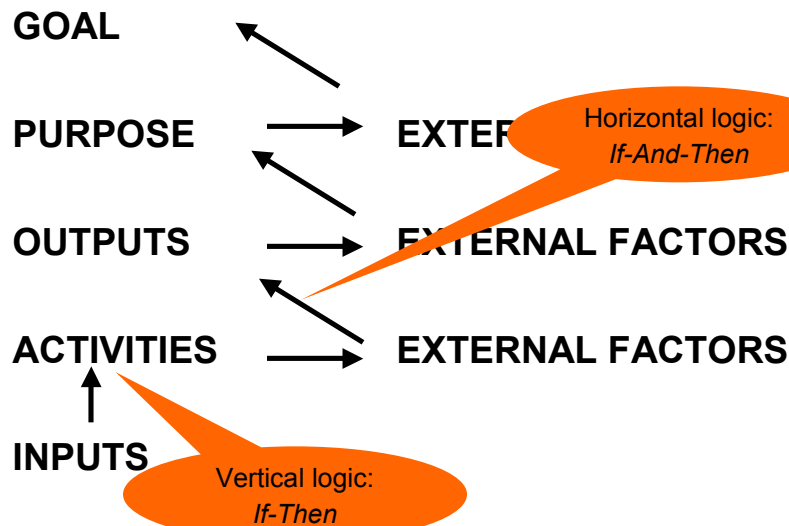
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## Main Components: Logical Framework Matrix (Logframe)

- **Impact:** The intended result to which the institution or project aspires to contribute—specified as “goal” and “purpose(s)”.
- **Institution/ Project:** The outputs that will be produced to contribute to the desired impact. Activities to produce tangible outputs, and the inputs to mount activities.
- **The Operating Environment:** the many external factors which are needed for outputs to contribute to purposes and for purposes to contribute to goals

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## Logframe “Hierarchy”



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## Goal and Purpose

- Goal: Ultimate objective to which project is trying to contribute in the long term
- Purpose: (More) immediate effect or impact of the work of the institution/project
  - (Often) only one purpose in a logframe
  - Something that makes significant contribution to achieving goal
    - But, is (usually) outside of the immediate control of the institution

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## Outputs

- Products/services/capacities which the institution/project agrees to deliver
  - Feasible for **project** to deliver
  - Should include all outputs needed to reach the purpose
  - For international projects often found in in the “terms of reference”

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## Activities and Inputs

- Activities: Group of actions related to producing each output
  - Activities necessary to produce the output
    - Only activities the institution/project will do
- Inputs: People, funds, materials, services needed for activities to happen

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## External Environment— Assumptions and Risks

- Assumptions—things which must exist for the project to succeed
- Risks—things which, if missing, jeopardize success of project
- Vertical logic: If→And→Then
  - “Killer assumptions”—project redesign required

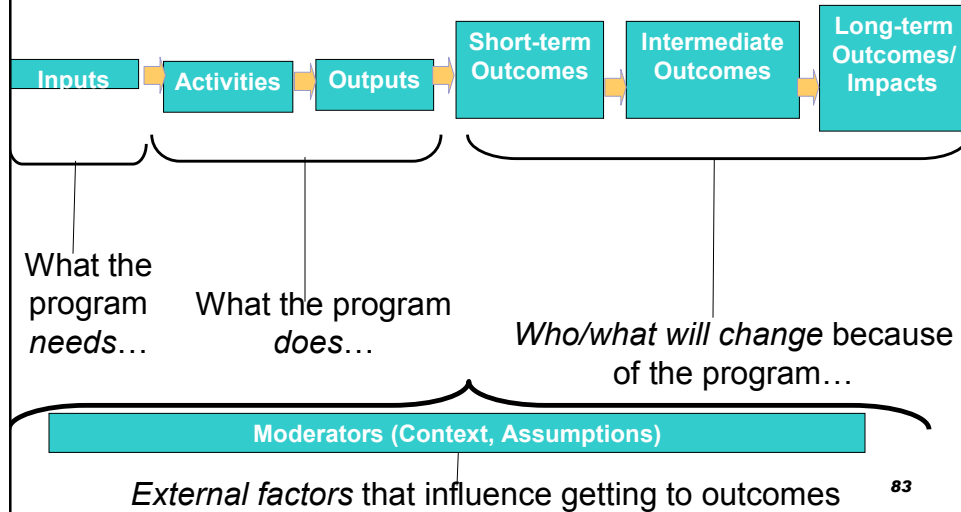
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## Typical Logframe

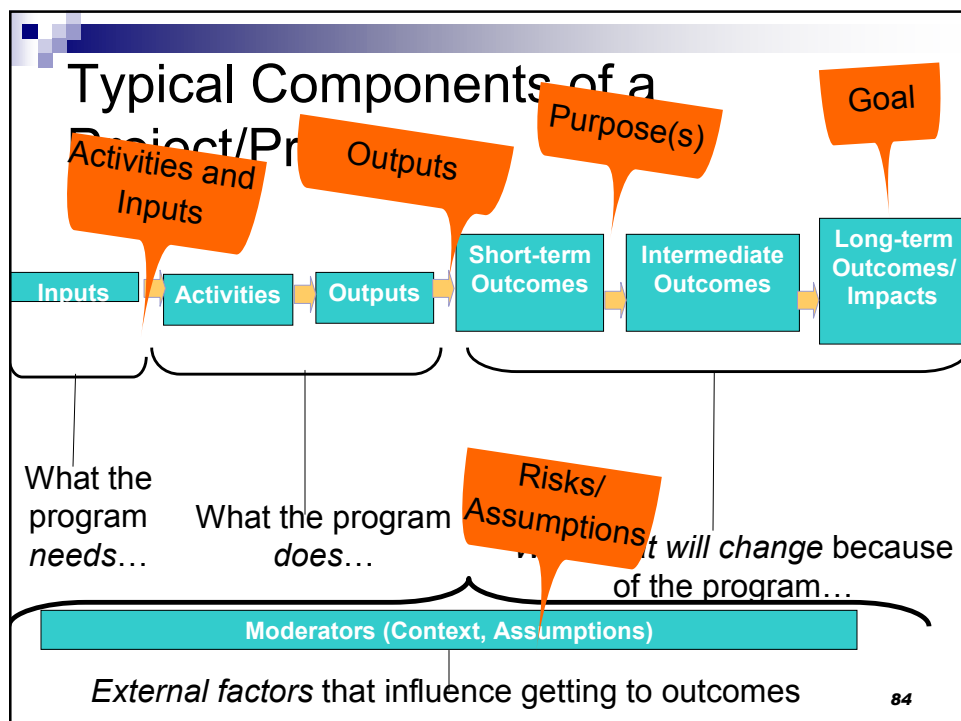
Project Structure	Objectively Verifiable Indicators (OVIs)	Means of Verification	Assumptions/Risks
Goal			
Purpose(s)			
Outputs			
Activities	Inputs		

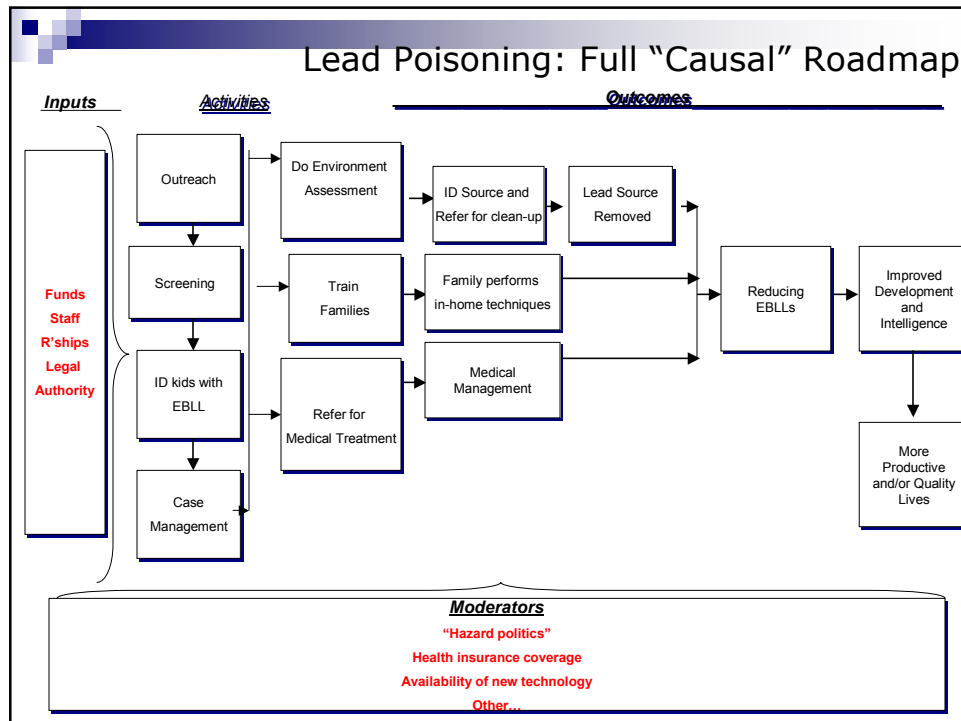
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## Typical Components of a Project/Program



## Typical Components of a Project/Program





## Logframe—Lead Poisoning-1

Project Structure	Objectively Verifiable Indicators (OVIs)	Means of Verification	Assumptions/Risks
<b>Goal:</b> Sustained reduction in EBL in children			
<b>Purpose(s):</b> 1. Leaded environments are cleaned up 2. EBL children receive medical treatment 3. Families adopt ameliorative nutrition and housekeeping behavior			1. Enough houses are reached to move pop-wide measure 2. Enough kids are reached to move pop-wide measure 3. Families accurately report their actions
<b>Outputs:</b> 1. Referrals of leaded homes 2. Referral of EBL kids to medical care 3. In-home trainings with families of EBL kids			1. Housing department has funds to clean up referred houses 2. Medical providers able to take on care of poor children 3. Families have motivation to implement recs
<b>Activities:</b> • Assess homes of EBL • Outreach • Screening • ID EBL kids • Case manage kids	<b>Inputs:</b> • Funds • Staff • Legal authority • Relationships with env and med community		• Adequate relationships with env or med community • Enough staff • Trained staff • Targeting right n'hoods

## Objectively Verifiable Indicators (OVIs)

- OVIs measure achievement of goal, purpose and outputs
- Include ones that can be:
  - ☐ Verified at reasonable cost
  - ☐ Can be collected by project

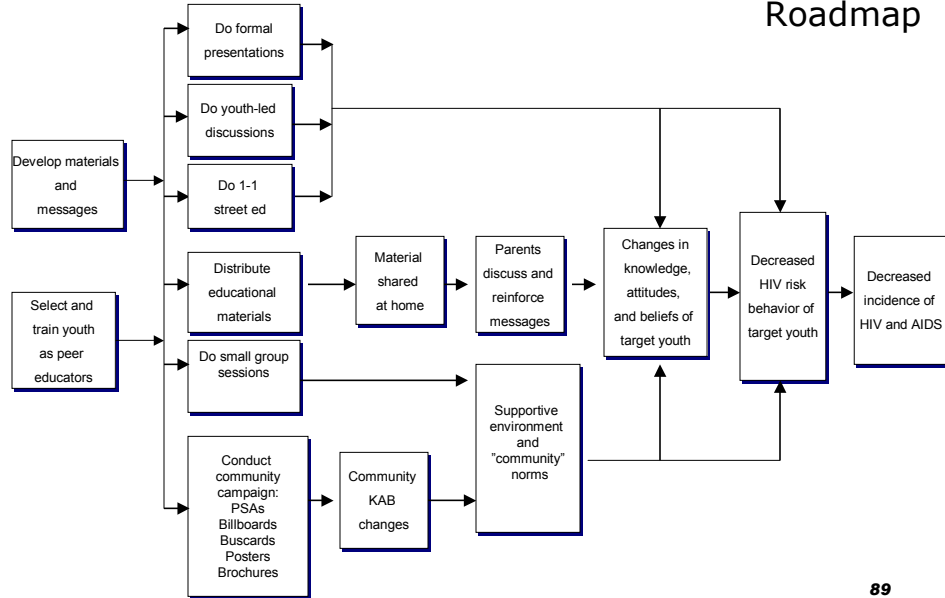
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## Logframe—Lead Poisoning-2

Project Structure	Objectively Verifiable Indicators (OVIs)	Means of Verification	Assumptions/ Risks
<b>Goal:</b> Sustained reduction in EBLL in children	XX% reduction in the number of children ages XX-XX with BLL exceeding 10 ul	County surveillance data	
<b>Purpose(s):</b> 1. Leaded environments are cleaned up 2. EBLL children receive medical treatment 3. Families adopt ameliorative nutrition and housekeeping behavior	1. XX% of homes identified with a lead problem are "cleaned up" 2. XX% of EBLL kids with BLL <25 are in treatment with qualified MD 3. XX% of families with EBLL kids are adopting recs	1. Housing dept logs 2. Health dept case management logs 3. Self-report survey of families	1. Enough houses are reached to move pop-wide measure 2. Enough kids are reached to move pop-wide measure 3. Families accurately report their actions
<b>Outputs:</b> 1. Referrals of leaded homes 2. Referral of EBLL kids to medical care 3. In-home trainings with families of EBLL kids	1. Number of leaded homes referred 2. Number of referrals of kids to medical care 3. Number of trainings with EBLL families	1. Health dept logs 2. Health dept logs 3. Health dept logs	1. Housing department has funds to clean up referred houses 2. Medical providers able to take on care of poor children 3. Families have motivation to implement recs
<b>Activities:</b> 1. Assess homes of EBLL 2. Outreach 3. Screening 4. ID EBLL kids 5. Case manage kids	<b>Inputs:</b> Funds Staff Legal authority Relationships with env and med community		Adequate relationships with env or med community Enough staff Trained staff Targeting right n'hoods

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## Eastside HIV/AIDS Prevention Program: "Causal" Roadmap



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## Eastside Logframe

- Using Eastside narrative and/or logic model, identify:
  - ☐ Goal
  - ☐ Purpose
  - ☐ Outputs
  - ☐ Activities
  - ☐ Inputs
- ID some key assumptions and risks

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## Logframes vs. Logic Models

*Logframe pluses viz logic models:*

- Succinct
- Integrates concept—measure—measurement from start
- Forces link between external environment and project
- Others?

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## Logframes vs. Logic Models

*Logframe minuses viz logic models:*

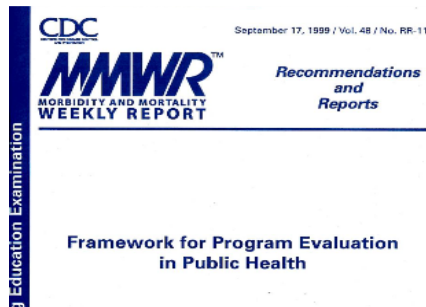
- Less attention to clear program theory—can lead to garbage in-garbage out
- (Often) focuses on single purpose
- Not good at handling “chains” of outcomes
- Use of “outputs” a little garbled
- External factors often a “rubbish” bin and not used strategically
- Others?

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# Every Picture Tells a Story

Life Post-Session

## Helpful Publications @ [www.cdc.gov/eval](http://www.cdc.gov/eval)



Framework for Program Evaluation  
in Public Health



An Evaluation  
Framework for  
Community  
Health Programs

## Helpful Resources

- NEW! Intro to Program Evaluation for PH Programs—A Self-Study Guide: <http://www.cdc.gov/eval/whatsnew.htm>
- **Logic Model Web Sites**
  - Innovation Network: <http://www.innonet.org/>
  - Harvard Family Research Project: <http://www.gse.harvard.edu/hfrp/>
  - University of Wisconsin-Extension: <http://www.uwex.edu/ces/lmcourse/>
  - CDC/DASH: <http://www.cdc.gov/healthyyouth/evaluation/resources.htm#4>
  - CDC/STD: <http://www.cdc.gov/std/program/progeval/TOC-PGprogeval.htm>
- **Texts—Evaluation and Logic Models**
  - Kellogg Foundation Logic Model Development Guide: [www.wkkf.org](http://www.wkkf.org)
  - W.K. Kellogg Foundation Evaluation Resources: <http://www.wkkf.org/programming/overview.aspx?CID=281>
  - Rogers et al. Program Theory in Evaluation. New Directions Series: Jossey-Bass, Fall 2000
  - Chen, H. Theory-Driven Evaluations. Sage. 1990

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## Helpful Resources

### Process Mapping/Flow Charts

- Madison, Dan: *Process Mapping, Process Improvement, and Process Management*, Paton Press, 2005
- Joiner Associates: *Flowcharts: Plain & Simple: Learning & Application Guide* (Paperback), Oriel Inc. 1995
- Damielo, Robert: *The Basics of Process Mapping* (Paperback), Productivity Press, 1996

### Logframes

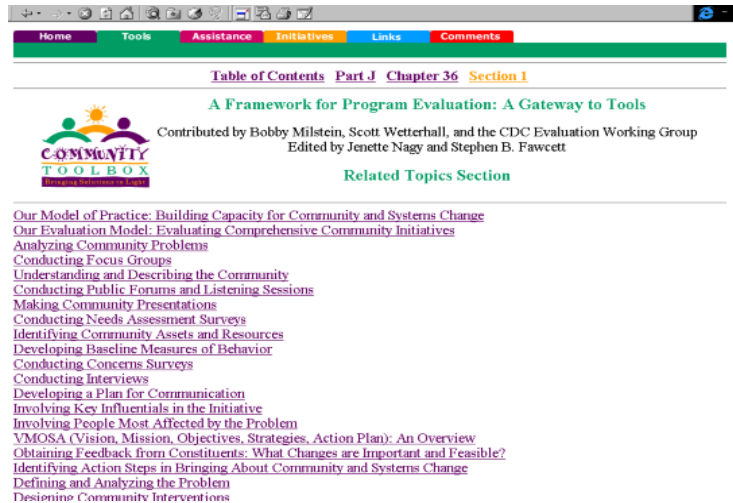
- The Knowledge and Research (KaR) Programme on Disability and Healthcare Technologies: *Constructing a Logical Framework*, <http://www.kar-dht.org/logframe.html>
- International Fund for Ag Development (IFAD): *Linking Project Design, Annual Planning, and M&E*, <http://www.ifad.org/evaluation/guide/3/3.htm>
- Campell, Jock, Innovation Centre, University of Exeter: *Logical Frameworks*, <http://www.innovation.ex.ac.uk/imm/GCRMN%20Logframe%20training.pdf>

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# Community Tool Box

## <http://ctb.ku.edu>



The screenshot shows a web browser window displaying the Community Tool Box website. The browser's address bar shows the URL <http://ctb.ku.edu>. The website has a navigation bar with tabs: Home, Tools, Assistance, Initiatives, Links, and Comments. Below the navigation bar, there is a breadcrumb trail: [Table of Contents](#) [Part J](#) [Chapter 36](#) [Section 1](#). The main heading is "A Framework for Program Evaluation: A Gateway to Tools". Below this, it says "Contributed by Bobby Milstein, Scott Wetterhall, and the CDC Evaluation Working Group" and "Edited by Jenette Nagy and Stephen B. Fawcett". There is a logo for the "COMMUNITY TOOL BOX" with the tagline "Research, Resources, and Tools for Change". Below the logo, there is a "Related Topics Section" with a list of links: [Our Model of Practice: Building Capacity for Community and Systems Change](#), [Our Evaluation Model: Evaluating Comprehensive Community Initiatives](#), [Analyzing Community Problems](#), [Conducting Focus Groups](#), [Understanding and Describing the Community](#), [Conducting Public Forums and Listening Sessions](#), [Making Community Presentations](#), [Conducting Needs Assessment Surveys](#), [Identifying Community Assets and Resources](#), [Developing Baseline Measures of Behavior](#), [Conducting Concerns Surveys](#), [Conducting Interviews](#), [Developing a Plan for Communication](#), [Involving Key Influentials in the Initiative](#), [Involving People Most Affected by the Problem](#), [VMOSA \(Vision, Mission, Objectives, Strategies, Action Plan\): An Overview](#), [Obtaining Feedback from Constituents: What Changes are Important and Feasible?](#), [Identifying Action Steps in Bringing About Community and Systems Change](#), [Defining and Analyzing the Problem](#), and [Designing Community Interventions](#).