Monitoring Flour Fortification Programs: An Overview

Harmonization Workshop for
Wheat and Maize Flour Fortification
Nairobi, Kenya, 19-22 April 2010

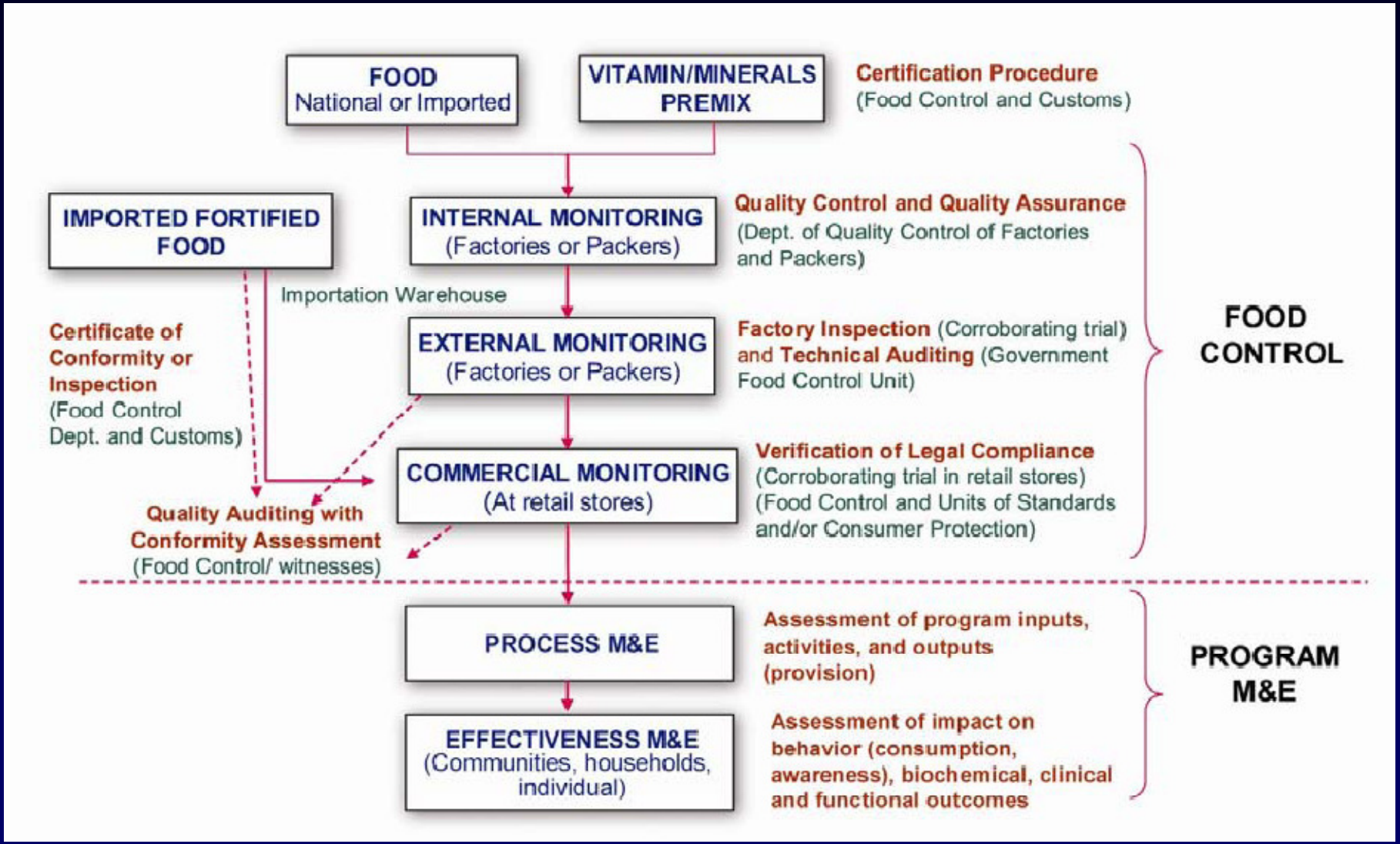
Laird J. Ruth
International Micronutrient Malnutrition and Control (IMMPaCt) Program
Centers for Disease Control and Prevention (CDC)
www.cdc.gov/immpact

Topics

- Monitoring definition and concepts
- Food fortification monitoring system overview
- General principals for setting up a monitoring system
- Data sources for monitoring

Monitoring:
definition and concepts

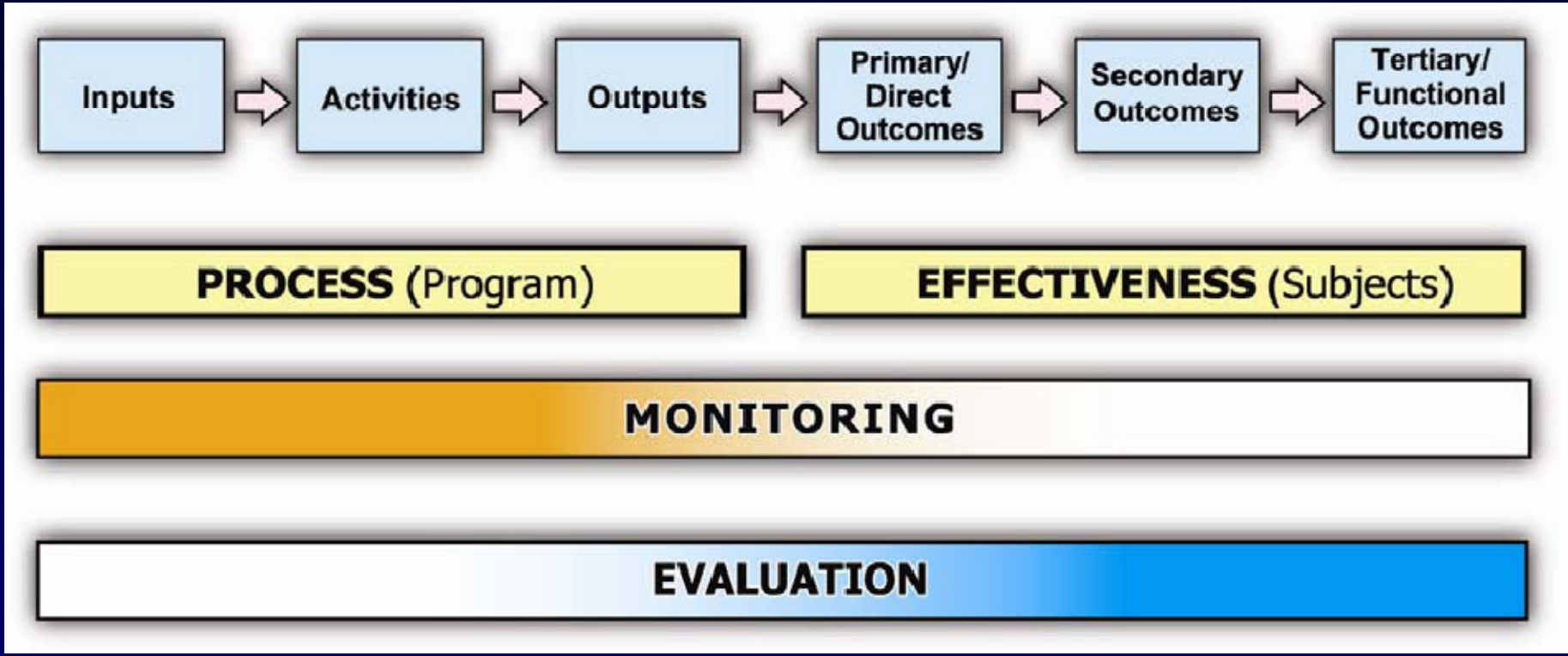
Framework for Monitoring of Flour Fortification Programs



Process (Program) Monitoring

- **Inputs** extend to the financial, human, and material resources used for a program
- **Activities** are the specific actions taken or work performed through which inputs, such as funds, technical assistance and other types of resources are mobilized to produce specific outputs.
- **Outputs** include the products, capital goods and services that result from an intervention, which are relevant to the achievement of outcomes
- **Outcomes** extend to the likely or achieved effects, or impact of a program in the target population.

Logic Model of M&E



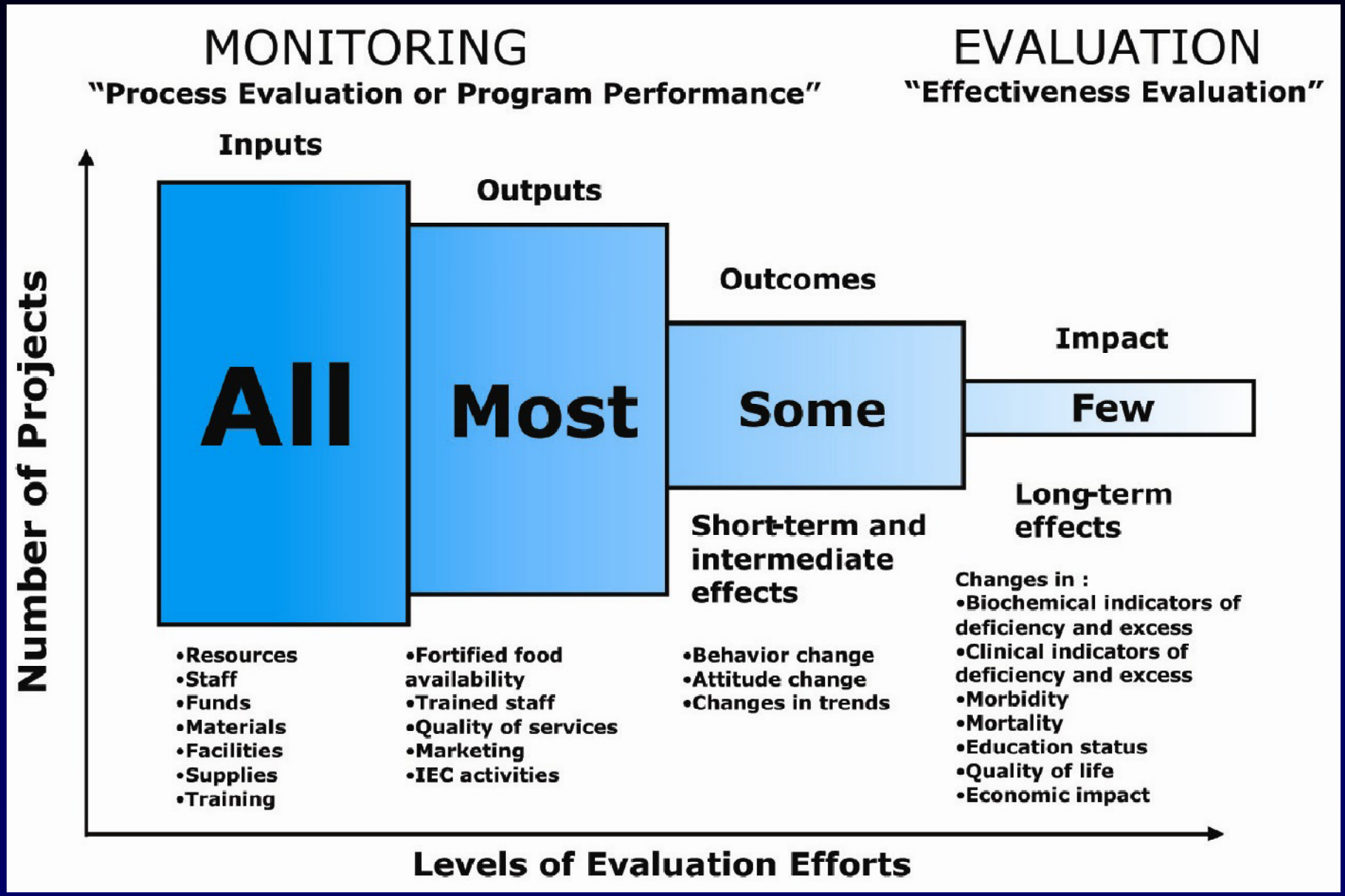
Flour Fortification Program Monitoring Definition:

- The continuous, ongoing collection, review, analysis, and use of information and outcomes, to assess how the program is performing against predefined criteria.

Program Monitoring

- On-going collection of data and information to help assess the "processes" of program implementation, ie. inputs and activities carried out, and products and services (outputs) generated by the program according to pre-established criteria, and review of performance quality (i.e. answering the question, "how is the program proceeding?").

Monitoring and Evaluation Pipeline



Flour Fortification Monitoring System Overview

Why Monitor a Flour Fortification Program?

1. To ensure that fortified flour meet nutrient content and safety standards
2. To assess access, utilization and coverage of fortified flour by the people (the consumer)
3. To effectively manage and sustain the fortification program to eliminate vitamin and mineral deficiencies

Monitoring system

- ***Access:*** **is fortified flour available and affordable to the target population?**
- ***Utilization:*** **is fortified flour being purchased by the target households?**
- ***Coverage:*** **is fortified flour being consumed by the target population?**
  - **At what percent?**

Indicator example #1

Question	Measure	Indicator
***Access*:** **is fortified flour available and affordable to the target population?**	Increased production of fortified flour according to specifications	•Proportion of fortified / unfortified flour produced

Indicator example #2

Question	Measure	Indicator
***Utilization*:** **is fortified flour being purchased by the target households?**	Increased purchase of fortified flour and byproducts	•Proportion of households with flour "labeled" as fortified

Indicator example #3

Question	Measure	Indicator
***Coverage*:** **is fortified flour being consumed by the target population?**	Increased proportion of non-pregnant women (15-49) regularly consuming fortified flour	•Proportion of non-pregnant women (15-49) regularly consuming fortified flour

General Principals for Setting up a Monitoring System

1. Responsibility at each level needs to be clear:
   a) **For whom** are the data collected (stakeholders)?
   b) **What** data are collected (questions and indicators)?
   c) **How** are the data collected (methodology)?
   d) **Who** collects the data (personnel)?
   e) **When** are the data collected (frequency)?
   f) **Who** analyzes the data?
   g) **Who** reports the data and **when**?
   h) **Who** does what based on the information?

Example: Process Monitoring of Flour Fortification

Is sufficient fortified flour accessible?

Determine *for whom* to collect data → **Determine *what* you need to know** → **Determine *how* and *who* collects data** → **Determine *how often* to collect data** → **Determine *who* reports data**

National Fortification Alliance

National Fortification Alliance

Question	Indicator	Method	Responsibility	Frequency
Is sufficient fortified flour available for the population?	Amount of fortified flour (local and/or imported) relative to population needs	1. Analyze flour industry production and sales data 2. Retail assessment	Milling companies and distributors; MoCommerce	Annually (on-going)

CDC

Monitoring Implementation

- Do pilot run of monitoring system (data collection, analysis, and reporting process) to:
  - Correct potential problems
  - Allow "Stakeholders" to experience the system and:
    - ✓Their role, level of effort, and importance in the process
    - ✓The specific kinds of information that would be available to them through the monitoring system

*Parvanta, 2003

Data Sources for Monitoring

- Existing data systems
  - Health statistics data; anemia from ANC
  - Multiple Indicator Cluster Surveys (MICS)
  - Reproductive health surveys
  - Household Income and Expenditure Survey (HEIS)
  - Other surveys from other sectors (NGOs, government, Universities, etc)

Data Sources for Monitoring

- Sentinel monitoring (purposive sampling)
  - Schools
  - Worksites
  - Public health clinics
- Qualitative research and reports
  - Universities
  - Industry

Remember ….

There Are No Perfect Monitoring Systems

Only "Best We Can Do" Ones

*Parvanta, 2003

Asante!

lruth@cdc.gov

Monitoring and Evaluating
Food Fortification Programs:
General Overview Technical Consultation July 7, 2006
USAID - www.a2zproject.org

Program Evaluation

Objective assessment of a program that covers its need, design, ***implementation***, effectiveness, efficiency and sustainability

Aim of Evaluation

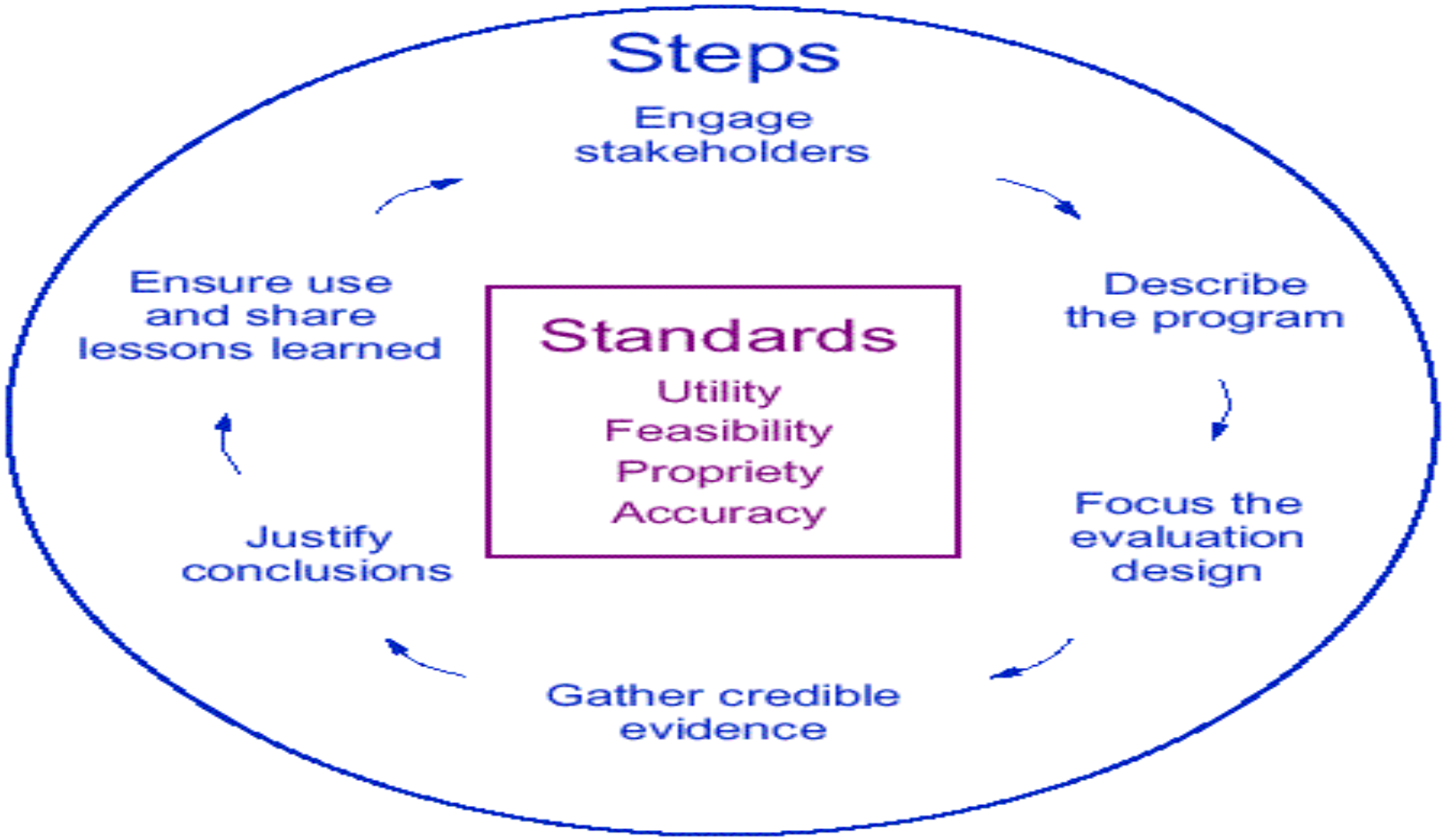
- Analyzes why intended impacts were or were not achieved
- Explores unintended results
- Informs practice, decision-making and policy

Evaluation questions

- Does the intervention achieve the intended purpose?
- Can the changes in outcomes be explained by the intervention, or by some other factors occurring simultaneously?
- Do intervention impacts vary across different groups of intended beneficiaries, regions, and over time?
- Are there any unintended effects of the intervention, either positive or negative?
- How cost-effective is the intervention in comparison with alternative projects?

Steps in designing a flour fortification monitoring & evaluation system

FIGURE 1. Recommended framework for program evaluation



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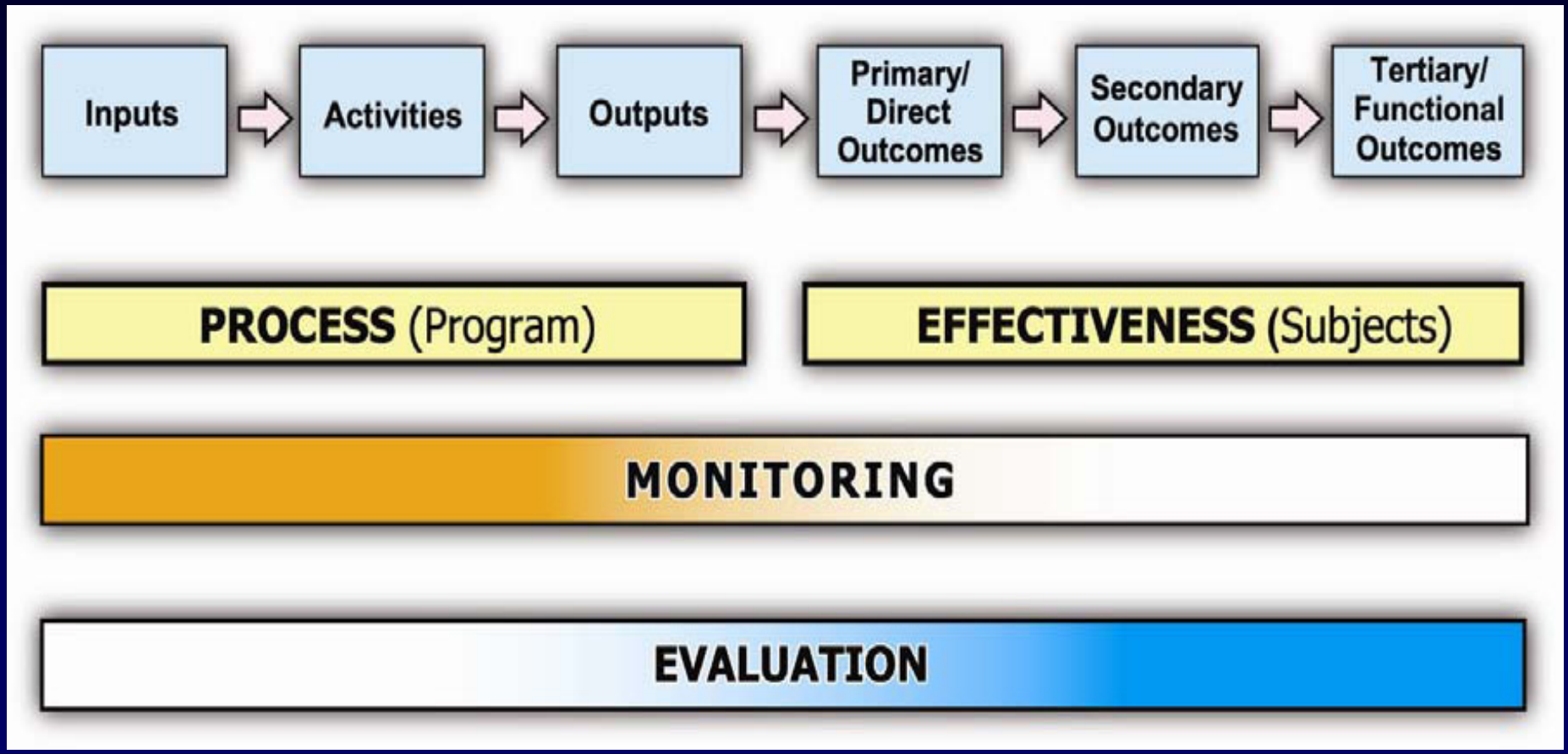
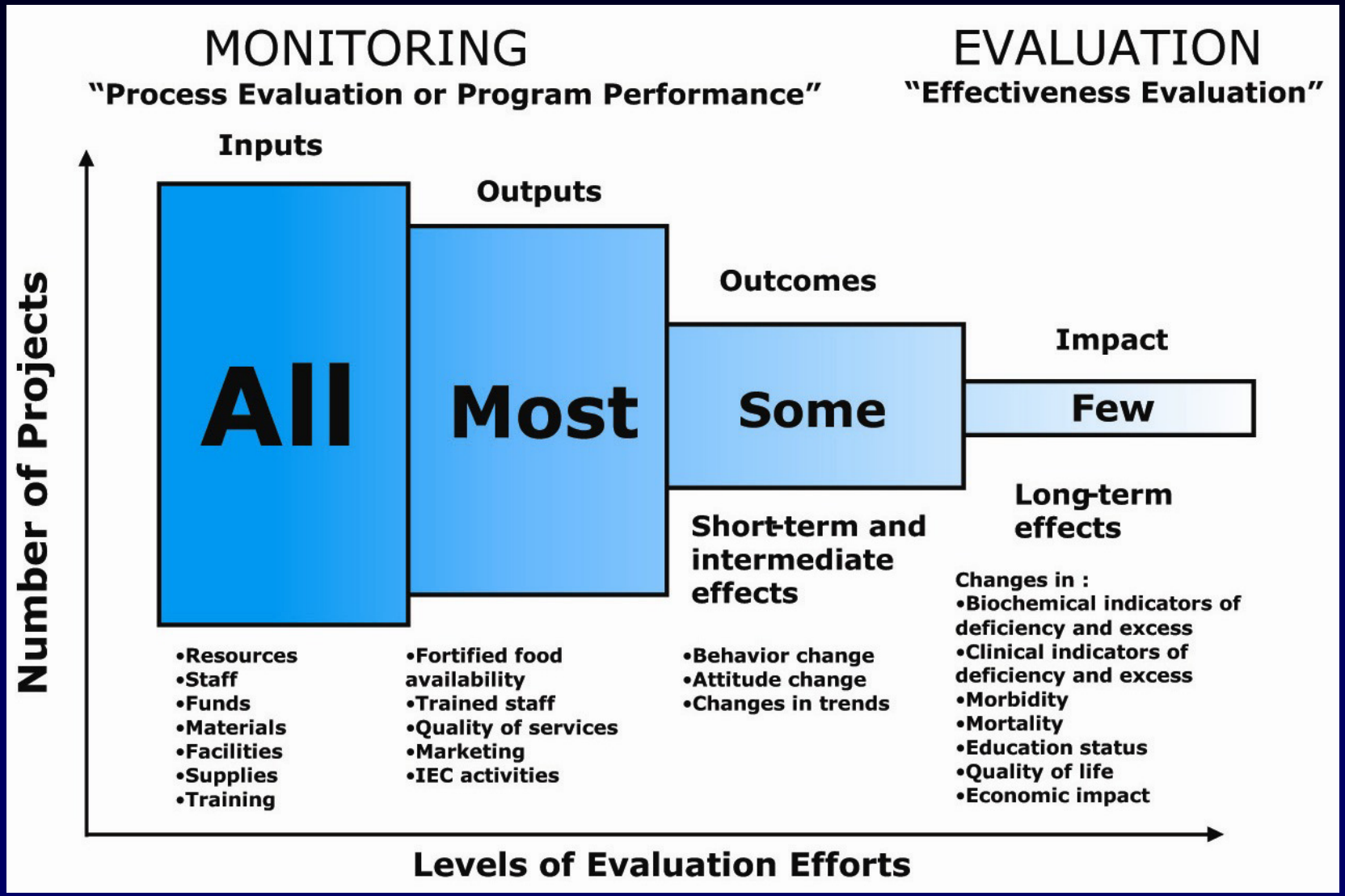
Describing the program: Macro Logic Model for M&E



Monitoring & Evaluation Pipeline



Collecting credible data

- Depend on the purpose of the evaluation
- Can be simple and not costly … or very complex and expensive

Example with flour fortification and anemia reduction in women

- Baseline and survey 2-3 yrs after → Allow to say if there was a change in anemia level or not
- Baseline and survey 2-3 yrs after, looking at potential confounding factors → Allow to say that impact may be related to the program
- Baseline + end survey with control → Allow to say that the impact is more likely due to the program

Choice of indicators

- Effectiveness indicators are related to outcomes
  - Change in behaviours
  - Consumption of foods/micronutrients
  - Biochemical/ physiological/ functional
    - For anemia: hemoglobin, serum ferritin, inflammatory responses (CRP, AGP) and others if budget allows

Data sources for Evaluation

- **Program based monitoring (sentinel system):**
  - **PHC based (e.g. 1st trimester pregnant women). Sentinel health centers.**
  - **Mothers of children seen in PHC**
  - **School based monitoring (high school girls). Sentinel schools**
  - **Large employers of female workforce. Sentinel worksites**
- **Population based monitoring:**
  - **Periodic national/sub-national cluster surveys**

*Parvanta, 2003

Example from flour fortification program in RSA

Micronutrient Status of non-pregnant women of reproductive age before and after implementation of the National Fortification Program- local data

	Pre-fortification Period (95% CI)	Post-fortification Period (95% CI)	p-value
Serum Folate < 2.5 ng/ml	16.3%	0%	0.001
Red Blood Cell Folate < 164 ng/ml	26.4%	1.9%	0.000
Serum Ferritin <12.0 µg/ml	25.0%	25.0%	0.74
Hemoglobin <11.0 g/dl	7.5%	5.0%	0.51
Vitamin B12 <145 pg/ml	6.3%	11.3%	0.16

Modjadji SEP., Alberts RL. Folate and iron status of South African non-pregnant women of childbearing age before and after fortification of foods. SAJCN: Vol 20, No 3; 89, 2007.

Neural Tube Defects Surveillance System

- NTD surveillance system was established in 2002
- 12 public hospitals in 4 provinces
- Since 2002, 53,000 births/year have been monitored
- Prevalence of NTDs was reduced by 30.5% after mandatory fortification ($p<0.05$)

Prevalence of NTDs in South Africa Pre and Post Mandatory Folic Acid Fortification Legislation

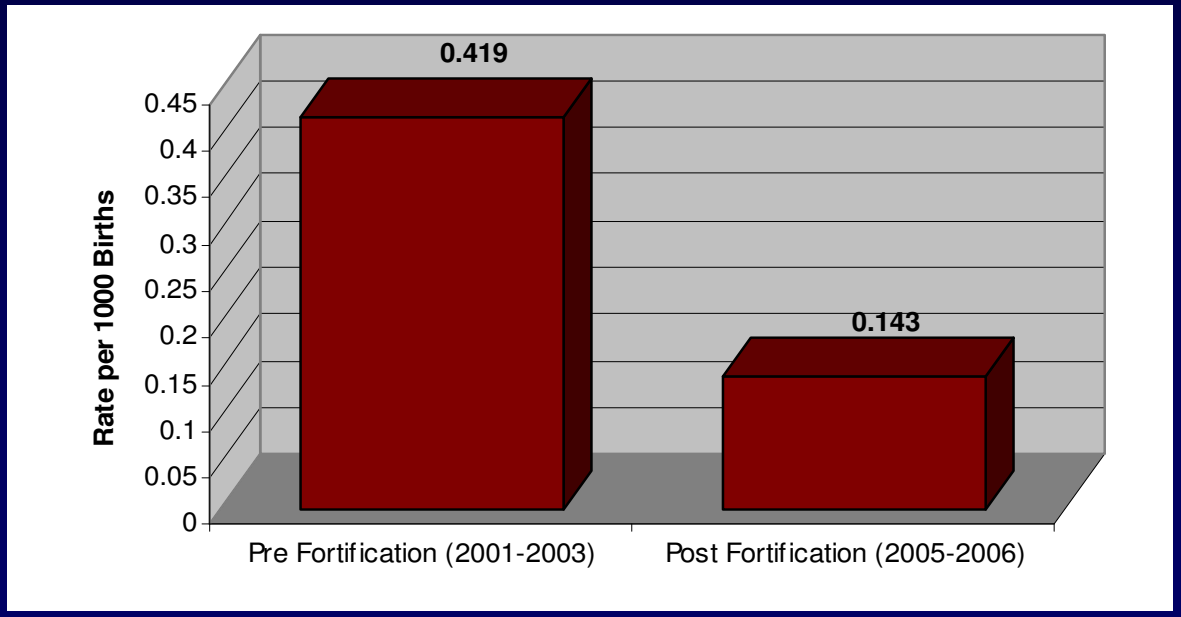
Province	Pre Fortification (2001-2003)	Post fortification (2005-2006)
	Rate/1000 Births	Rate/1000 Births
Eastern Cape	2.11	1.26
KwaZulu Natal	1.05	0.78
Mpurnalanga	1.36	1.02
Free State	1.29	1.03
Total	1.41 95% CI: 1.15-1.67	0.98 95% CI: 0.69-1.26

Sayed AR., Bourne D., Pattinson R., Nixon J., Henderson B. Decline in the prevalence of neural tube defects following folic acid fortification and its cost-benefit in South Africa. Birth Defects Res A Clin Mol Teratol. 2008 Apr;82(4):211-6.

Perinatal Mortality Surveillance System

- Causes of death up to seven days of age are recorded through 164 sentinel health care facilities
- NTD perinatal mortality decreased by 65.9% (P<0.001)
- As a control, the perinatal mortality rate of hydrocephalus, unrelated to NTDs, did not change significantly (P=0.77)

Reduction in Perinatal Mortality Rates from NTDs in South Africa



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How often to evaluate?

- Done periodically but not frequently
- Elaborates on the information on program implementation and impact generated through the ongoing monitoring system
- it is often targeted to problems identified through the monitoring process.

When to do impact evaluation?

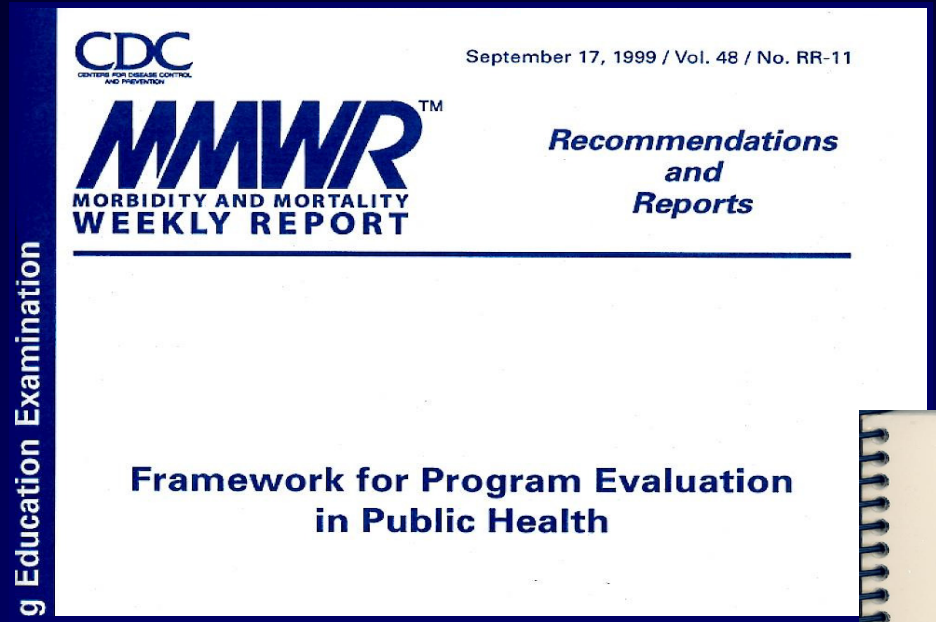
- Once process monitoring system indicates:
  - Adequate program implementation
    - Need regular production and distribution of fortified product
    - Usually after 1 yr, more often after 18-24 mo
  - Adequate program coverage for minimum period (depends on target nutrient)

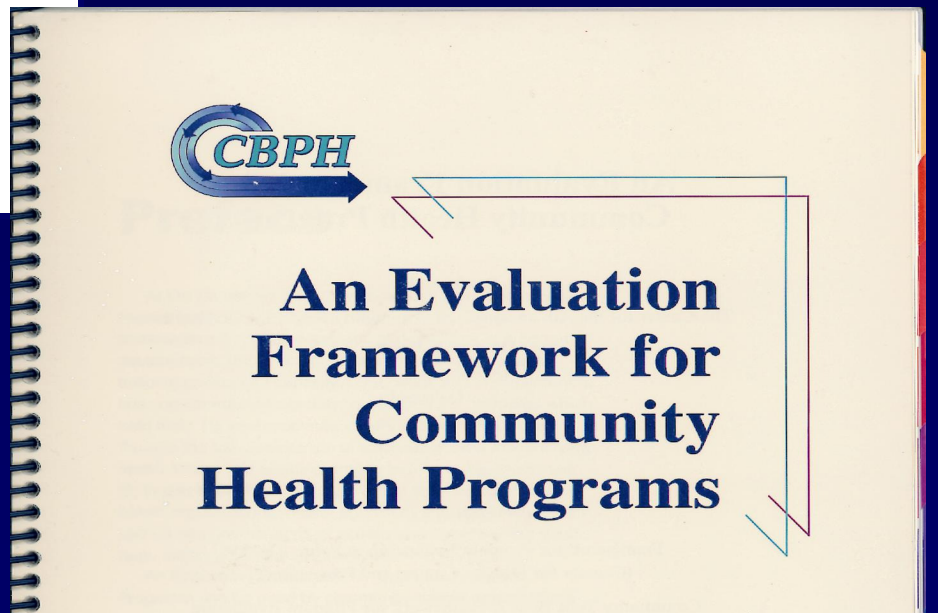
Not Before!

Justifying and sharing conclusions

- Critical to sustain successful aspects and adapt program if improvements required
- Compare data from various sources (if available)
- Get stakeholders involved to embrace results and take actions
- Communicate and disseminate

Helpful Publications @ www.cdc.gov/eval





Helpful Resources: Web Based

- NEW! Intro to Program Evaluation for PH Programs—A Self-Study Guide: http://www.cdc.gov/eval/whatsnew.htm
- Innovation Network: http://www.innonet.org/
- W.K. Kellogg Foundation Evaluation Resources: http://www.wkkf.org/programming/overview.aspx?CID=281
- University of Wisconsin-Extension: http://www.uwex.edu/ces/lmcourse/

Asante sana!

lruth@cdc.gov