

TA 4581: Developing a National Result-Based  
M&E System For Key Projects  
建设国家重大项目以结果为导向的  
监测与评估系统

# Monitoring Outcomes

March 2007  
2007年3月

# What leaders want to know 1-3 years after construction:

- is the finished project being used as intended?
- is the operating performance as planned or do we need to make some modifications to make it work better?
- is the project achieving the intended results?

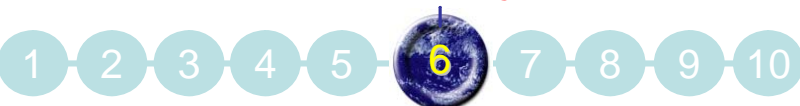
Monitoring



# Outcomes are not always guaranteed..

- Outcomes are the results of delivering the outputs.
- The project design assumes the outputs will generate the outcome.
- There is always a risk the project might not deliver the outcomes, because:
  - the design may have omitted a critical output or activity;
  - construction of the design may be faulty in a way not detectable in the outputs themselves;
  - the external environment may have changed;
  - anticipated risks may have; or
  - key assumptions underlying the project design may not have held true.
- So we must always measure and monitor outcomes

Monitoring



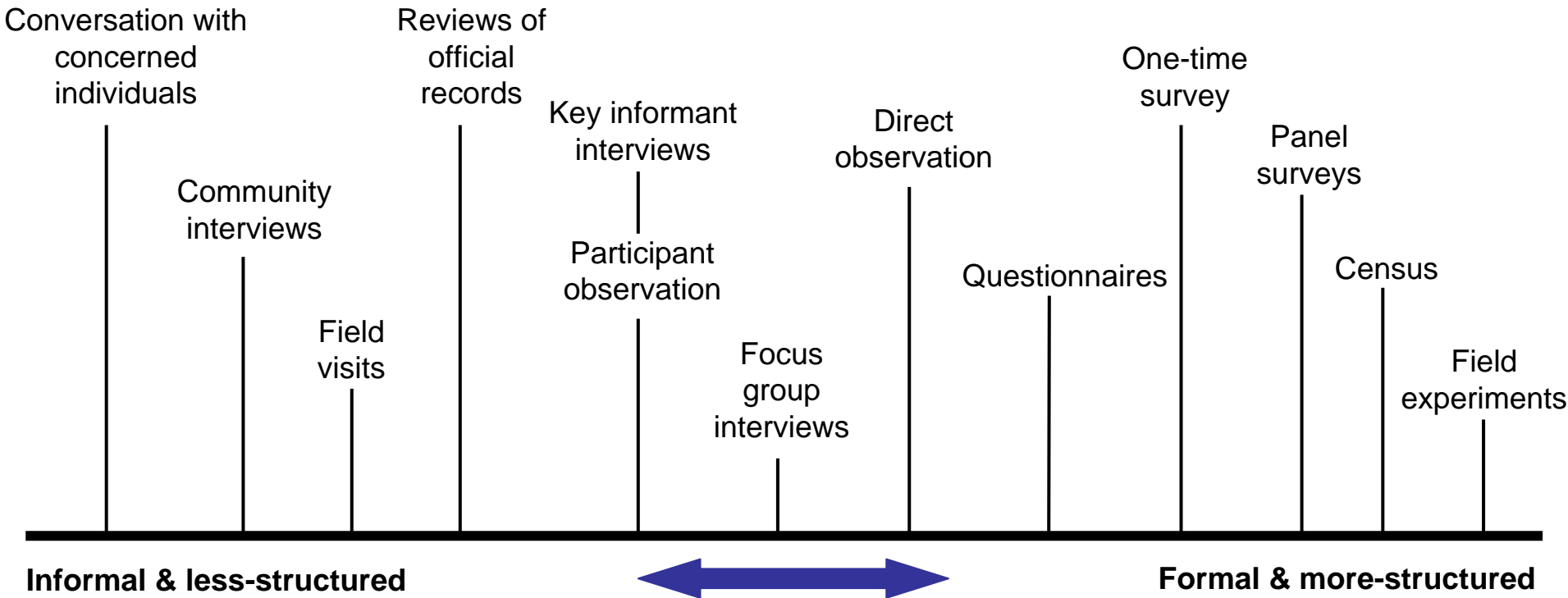
# Commissioning and early operation

- Monitor outcomes:
  - Utilization indicators
  - Financial indicators
  - Quality indicators
- Compare forecast or design to actual.
- During construction:
  - employment
  - contribution to local economy
  - re-settlement
  - progressive commissioning of outputs can lead to early outcomes

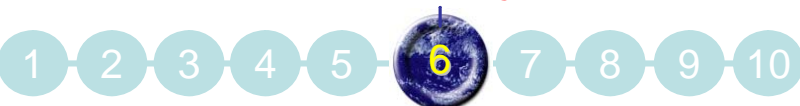
Monitoring



# Data Collection Methods



## Monitoring



From "Ten Steps to a Results-Based Monitoring & Evaluation System: A Handbook for Development Practitioners", Kusek & Rist, The World Bank, 2004.

# Comparison of major data collection methods

Characteristic	Data collection method			
	Review of records	Self-administered questionnaire	Interview	Rating by trained observer
Cost	Low	Moderate	Moderate to High	Depends on availability of low-cost observers
Training required for data collectors	Some	None to some	Moderate to high	Moderate to high
Time to complete	Depends on amount of data required	Moderate	Moderate	Short to moderate
Response rate	High, if records contain needed data	Depends on how distributed	Generally moderate to good	High

# Outcome indicators – examples

## 直接结果

- Utilization rate
  - average number of vehicles per day travelling on road.
  - Output of electricity production unit, MW-h provided to industry
- Financial
  - revenue from the asset usage (calculated as pay-back period or rate of return, e.g. FIRR)
- Quality
  - average travel time between A and B by road
  - quality of electricity output, e.g. no load shedding, xx MW peak load maintained

Monitoring



# Utilization indicators

- Utilization of the finished project assets is a basic outcome indicator – every project should have a utilization level that can be measured
- Different sectors and projects have specific methods for measuring utilization indicators
- Indicator definitions must take into account variation patterns – in time, location etc

Monitoring



# Outcome indicator: Utilization

## Nanpu Bridge

Average number of vehicles per day

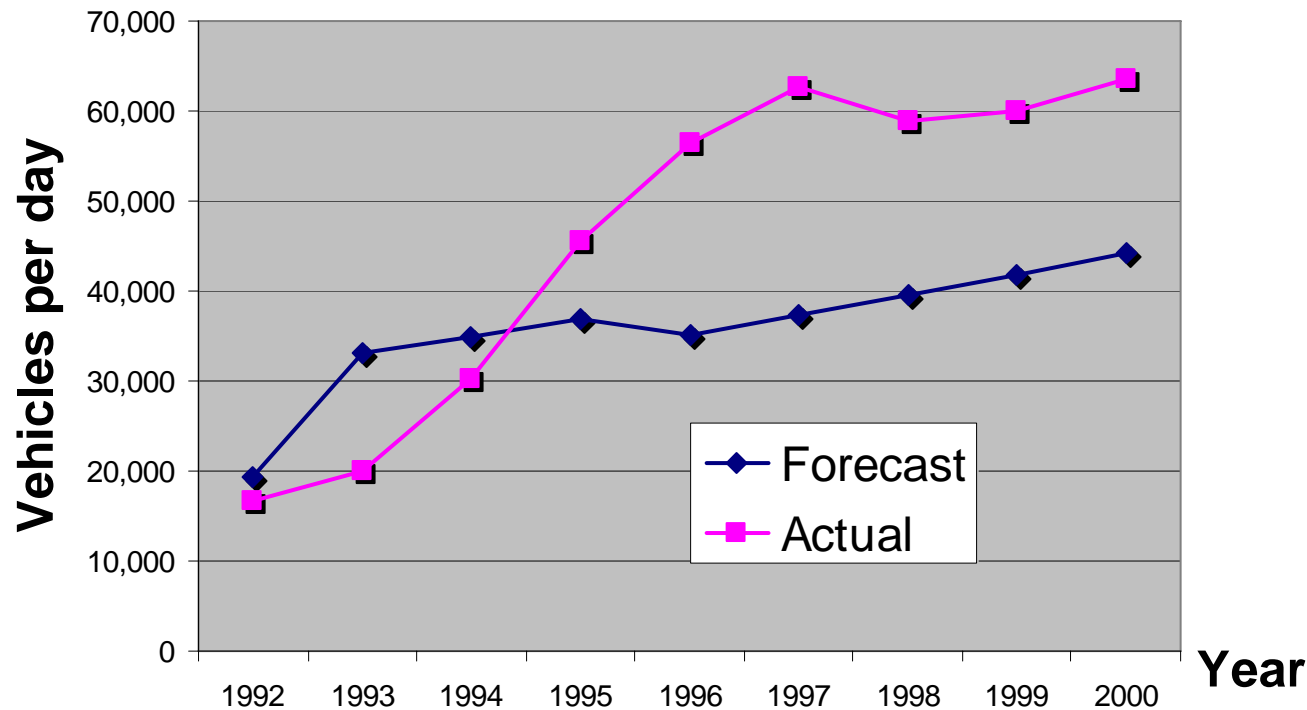
Year	Forecast	Actual
1992	19424	16612
1993	33026	19910
1994	34986	30300
1995	36848	45576
1996	35195	56456
1997	37272	62700
1998	39471	58900
1999	41799	60000
2000	44274	63500

Monitoring



# Outcome indicator: Utilization

Average number of vehicles per day  
Nanpu Bridge

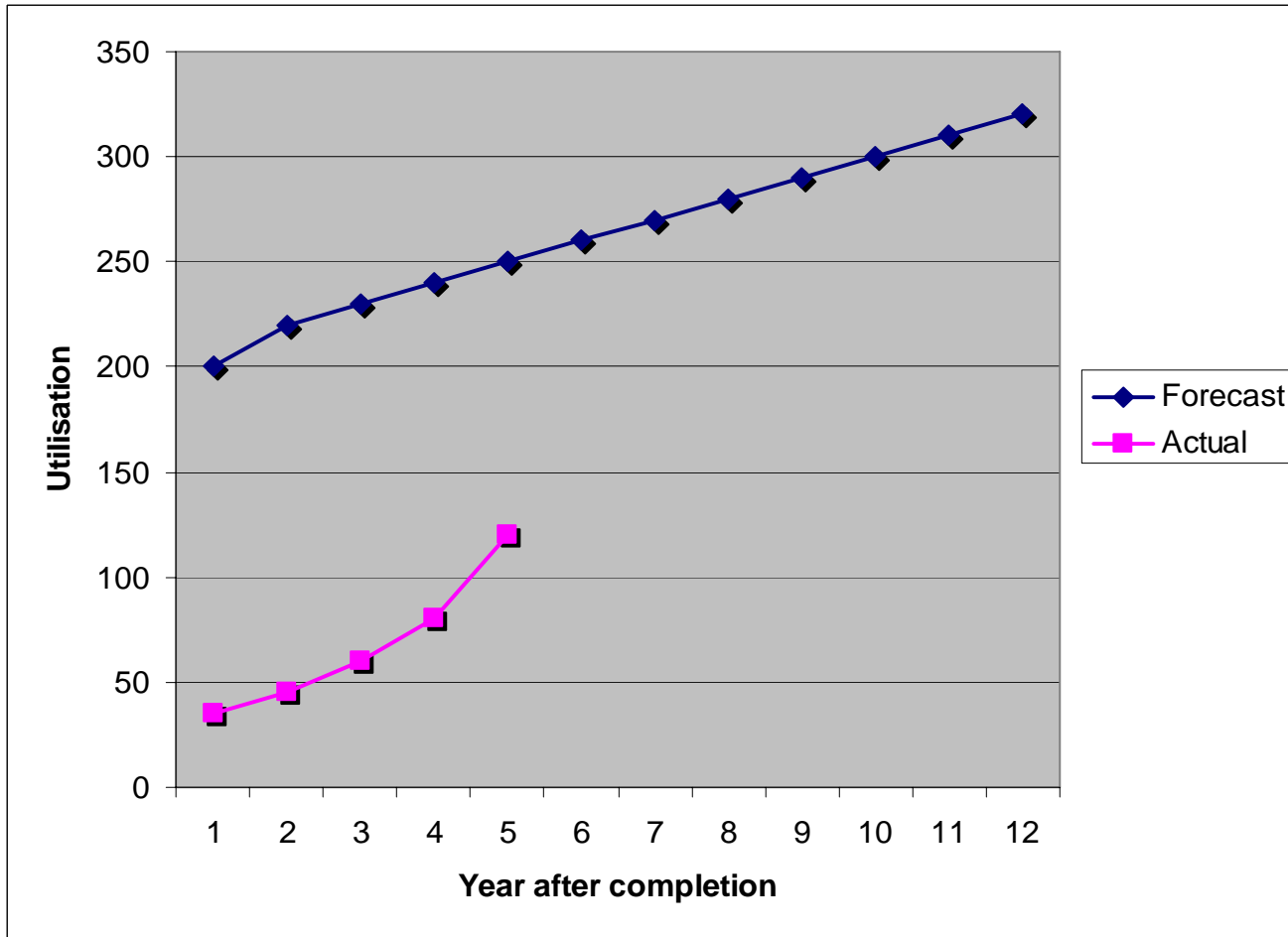


- What does this tell us about the success of the project?

Monitoring



# Outcome indicator - Utilization



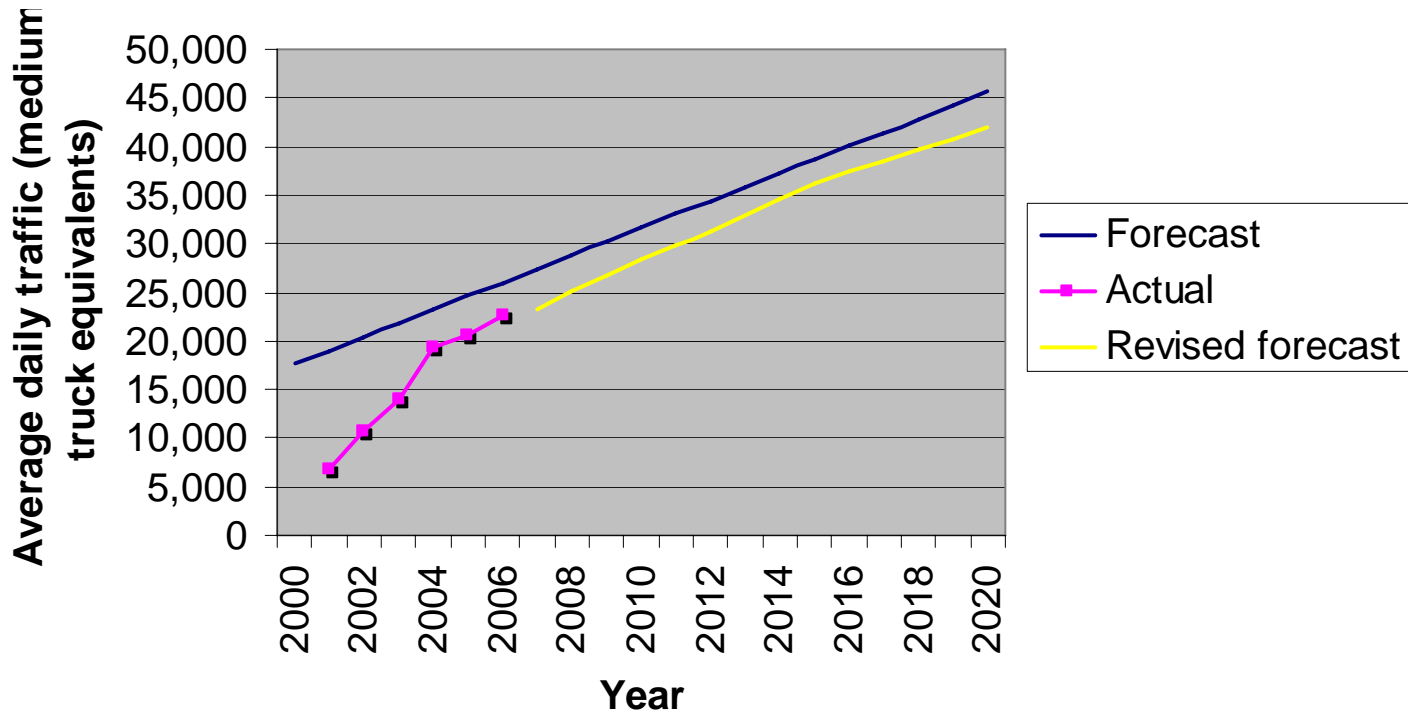
- What does this tell us about the success of the project?

Monitoring



# Outcome indicator: Utilization

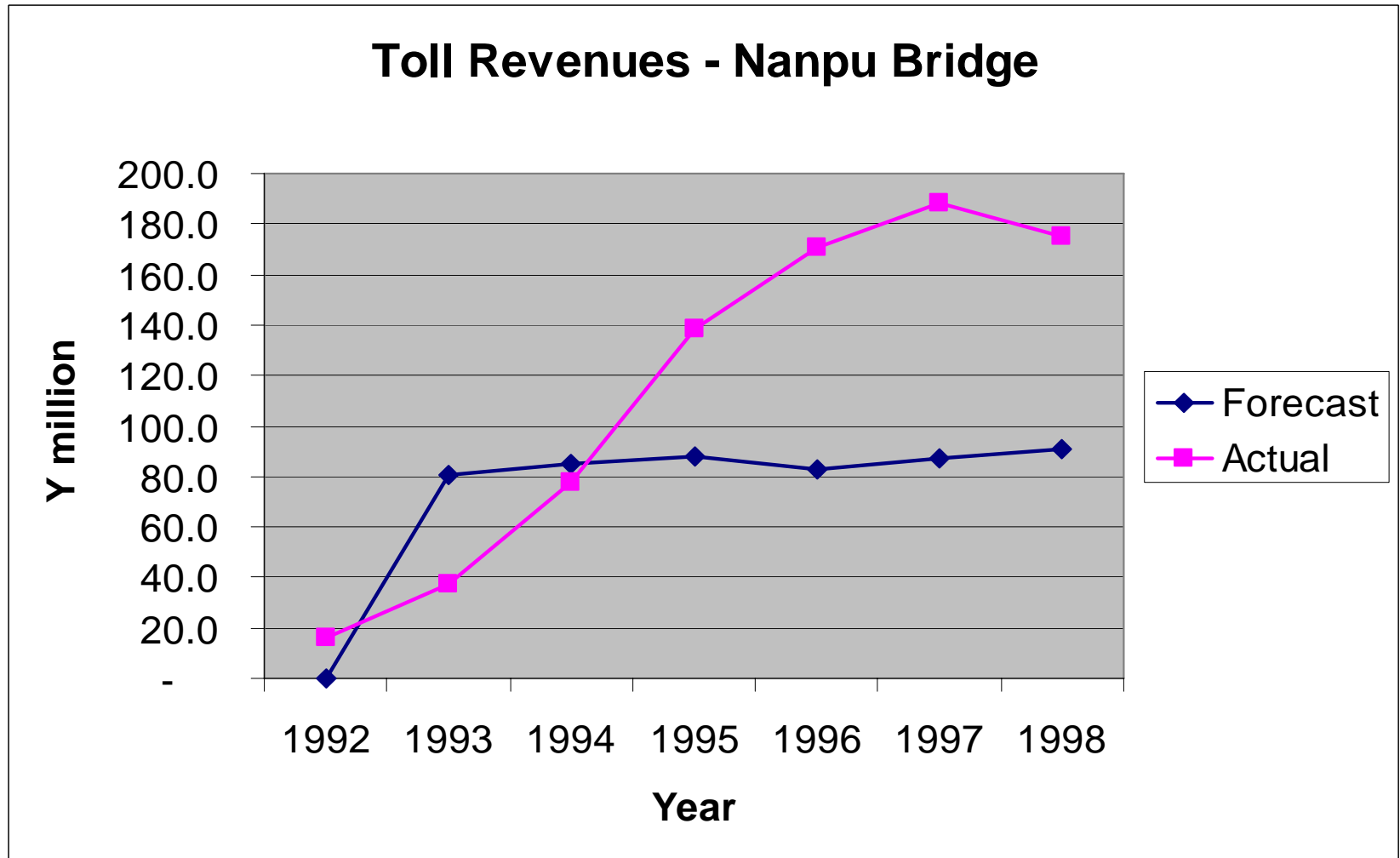
Traffic forecasts & actual - Expressway



- What does this tell us about the success of the project?

Monitoring

# Outcome indicator: Operating Revenue



- What does this tell us about the project?

Monitoring

# Financial Internal Rate of Return (FIRR)

- Applies to revenue-earning projects
- Revenues corrected for inflation (corrected to “real” values)
- Net cash flows calculated as the effective (internal) rate of return for the investment – the FIRR
- Projected cash flows should be subjected to sensitivity analysis

Monitoring



# Preparing an FIRR

- Prepare project cost estimates
- Forecast incremental project net cash flows
- Determine the appropriate discount rate
  - Weighted Average Cost of Capital (WACC) is a proxy for the financial opportunity cost of capital
- Calculate the financial net present value
- Calculate the financial internal rate of return (FIRR)
- Undertake risk and sensitivity analysis.
- Use actual project costs and actual revenues (as well as revenue forecasts into the future) to re-calculate FIRR after operational phase starts generating revenues

Monitoring



# FIRR Issues

- Forecast revenues not achieved, due to
  - below forecast demand, or
  - non-market prices due to regulation or subsidy
- Unrealistic financial returns give false picture of project benefits, due to:
  - monopoly market position, or
  - government subsidies counted as revenue
- Cost over-runs
- Foreign currency exposure
- Non-financial benefits not quantifiable

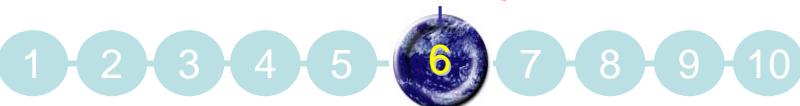
Monitoring



# Economic Internal Rate of Return (EIRR)

- Not the same as Financial Internal rate of Return
- Measures the effect of the project on the national economy
- Main difference is how benefits are calculated
- Used for project Evaluation

Monitoring



# Non-revenue generating projects

- Financial returns cannot be calculated on non-revenue generating projects
- Often possible to calculate the *economic benefits* of the project to the country

Monitoring



# Quality indicators

- Every project should have quality indicators for outcomes
- Different sectors and projects have specific methods for measuring quality indicators
- Indicator definitions must take into account variation patterns – in time, location etc



Monitoring



# Responding to outcome indicator data

- Outcomes monitoring is less frequent than outputs monitoring
- Frequency of monitoring outcomes relates to management's capacity to modify the operation
- Ability to modify operation depends on the nature of the assets, the service offered by the operating entity and the nature of the outcome being measured

Monitoring



# Workshop ( 案例研讨 )

- Go to your break-out group and work with them on the exercise given to you.

Monitoring



END

Monitoring

