

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
Project Implementation**

**March 2007
2007年3月**

What leaders want to know during construction:

- is the project construction on-time?
- is it within budget?
- will the final completion be on time and within budget?
- are the outputs meeting quality standards?
- is the project free from misuse of funds and corruption?
- is the project likely to achieve the intended results?

Monitoring



What to measure in the project implementation (construction) phase:

- Inputs
 - quantity
 - quality
 - costs
- Activities
 - schedule
 - costs
- Outputs
 - quantity
 - quality
 - cost
 - on-time completion
- Compare planned to actual achieved.
- Costs, quantities, quality and schedule adherence data audits can also be used as indicators of project probity.

Monitoring



Inputs

输入

- Quantity
 - number of person-hours spent on project
 - materials consumed
- Quality
 - % of supplied materials passing specification tests
- Financial
 - cost of supplied materials
 - price variation of purchased goods
- Timeliness
 - % on-time delivery of supplied materials

Monitoring



Activities

活动

- Quantity
 - number of work packages completed
- Quality
 - (usually measured by the quality of the outputs)
 - activities are being carried out according to project plan and technical specifications
- Safety
 - lost time injury rate
- Financial
 - cost of activities or tasks
 - variations
- Timeliness
 - (usually measure on outputs achieved on-time/late)

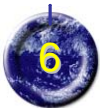
Monitoring



Outputs 提交物

- Quantity
 - number of buildings
 - km of road built
- Quality
 - % of quality tests passed, for example
 - strength of concrete
 - load/deflection test compared to specification
 - output of turbine unit
 -
- Financial
 - cost per km of road built
 - cost variance compared to contract
- Timeliness
 - % of milestones achieved inside schedule
 - Schedule Variance
 - Schedule Performance Index

Monitoring



6

Monitoring the Project Schedule

- Monitor progress against schedule
- Assess importance of delays
- Analyze causes of delays

Monitoring



Monitoring Costs

- Simple cost and price variances
- Earned Value

Monitoring



Earned Value Management

- Answers questions:
 - My actual costs are less than my budget. Is my project doing well, or is it behind schedule?
 - My project's actual costs are now higher than budgeted, and the project is only halfway complete. What is it likely to cost at completion?
 - My project engineer says do not worry about the cost overruns, as the rest of the work will cost less than budgeted. Is this likely?
 - Is price or usage causing my cost variance?

Monitoring



Earned Value Measures

- Planned Value
 - budgeted cost for work scheduled
- Earned Value
 - budgeted amount for work actually completed
- Actual Cost
 - total cost actually incurred
- Estimate to Complete
- Estimate at Completion

Monitoring



Monitoring the Project Schedule

- Schedule Variance

$$SV = EV - PV$$

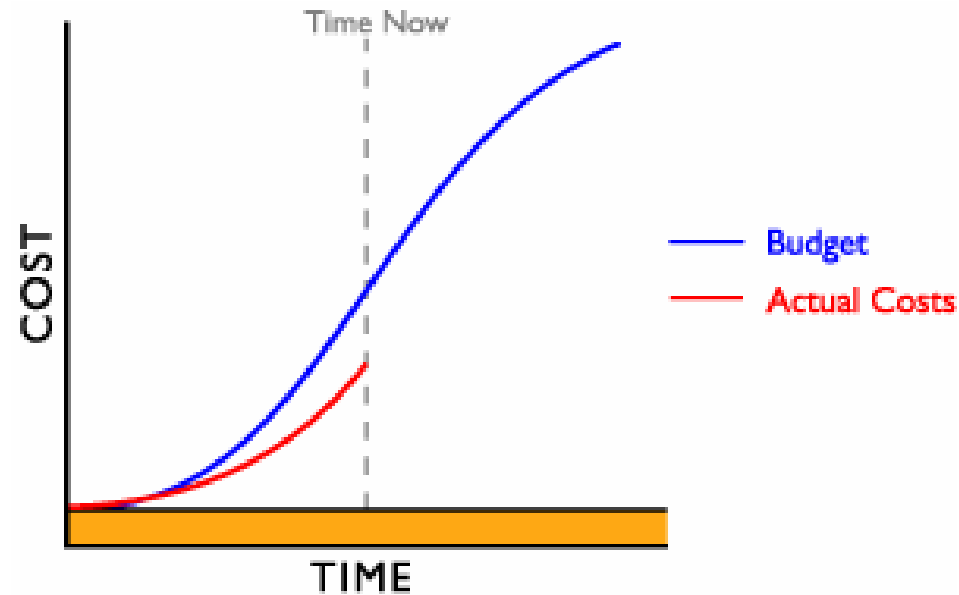
- Schedule Performance Index

$$SPI = EV/PV$$

Monitoring



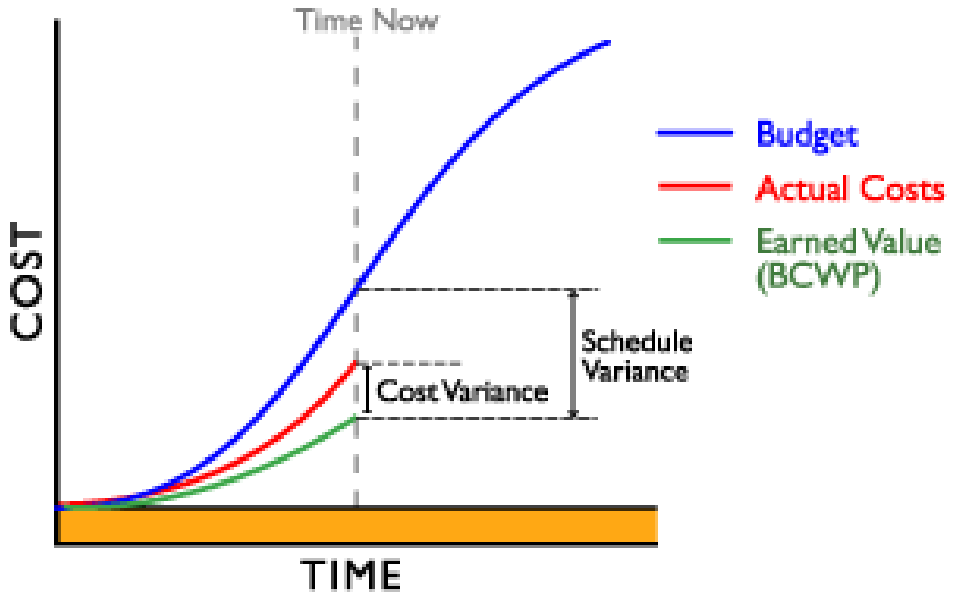
Interpreting Monitoring Data



Monitoring



Earned Value Management



Monitoring

Monitoring Quality

- Quality Management Plan
- Quality Assurance
- Quality Control:
 - Inspection and Test Plan
 - Hold Points
- Quality Audits
- Corrective Actions

Monitoring



Monitoring Safety

- Systems
- Safety Indicators

Monitoring



Choosing Monitoring Indicators

- Fundamental performance indicators
- “Early warning” indicators
- Results indicators

Monitoring



Possible indicators 可能的指标

Impacts: 长期效应

Economic benefits

Cost effectiveness

Distribution of benefits (social effects)

Outcomes: 直接结果

Utilization

Immediate benefits

Financial benefits

Sustainability

Social effect

Environmental effect

Inputs, Activities & Outputs:

输入、活动及提交物

Timeliness (on-time to schedule)

Quality

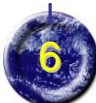
Costs – price

Costs – waste;

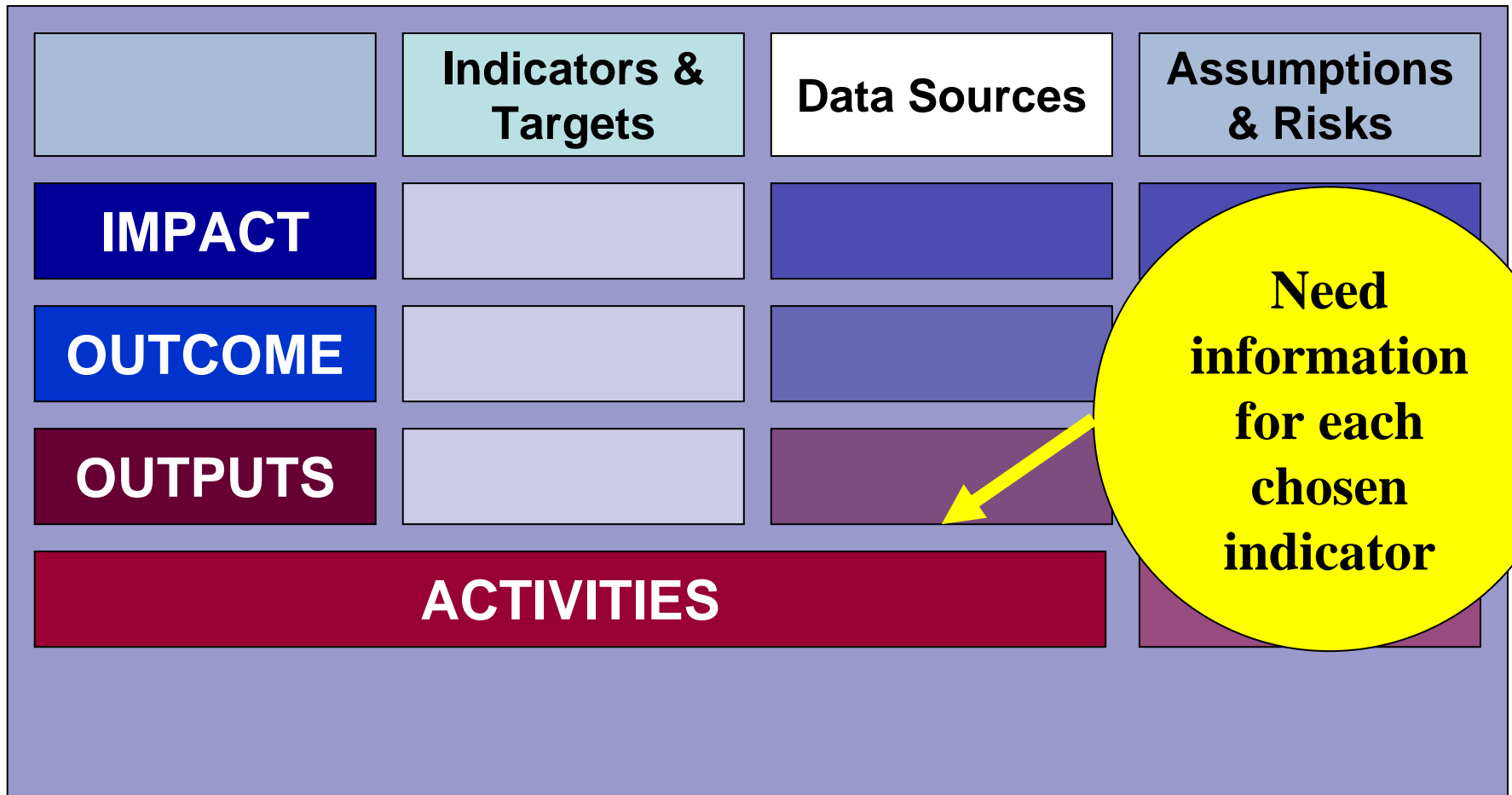
Quantities

Safety

Monitoring



Data Sources



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

