Workshop on Road Safety – 12th March 2019

EVALUATION OF ROAD SAFETY INTERVENTIONS IN SRI LANKA

Saman Bandara

Senior Professor, University of Moratuwa

President, Sri Lanka Evaluation Association

President, Highway Engineering Society, Sri Lanka

Road Safety Interventions

Approaches Available

- Traditional – Reactive
- Modern – Proactive

Traditional Approach

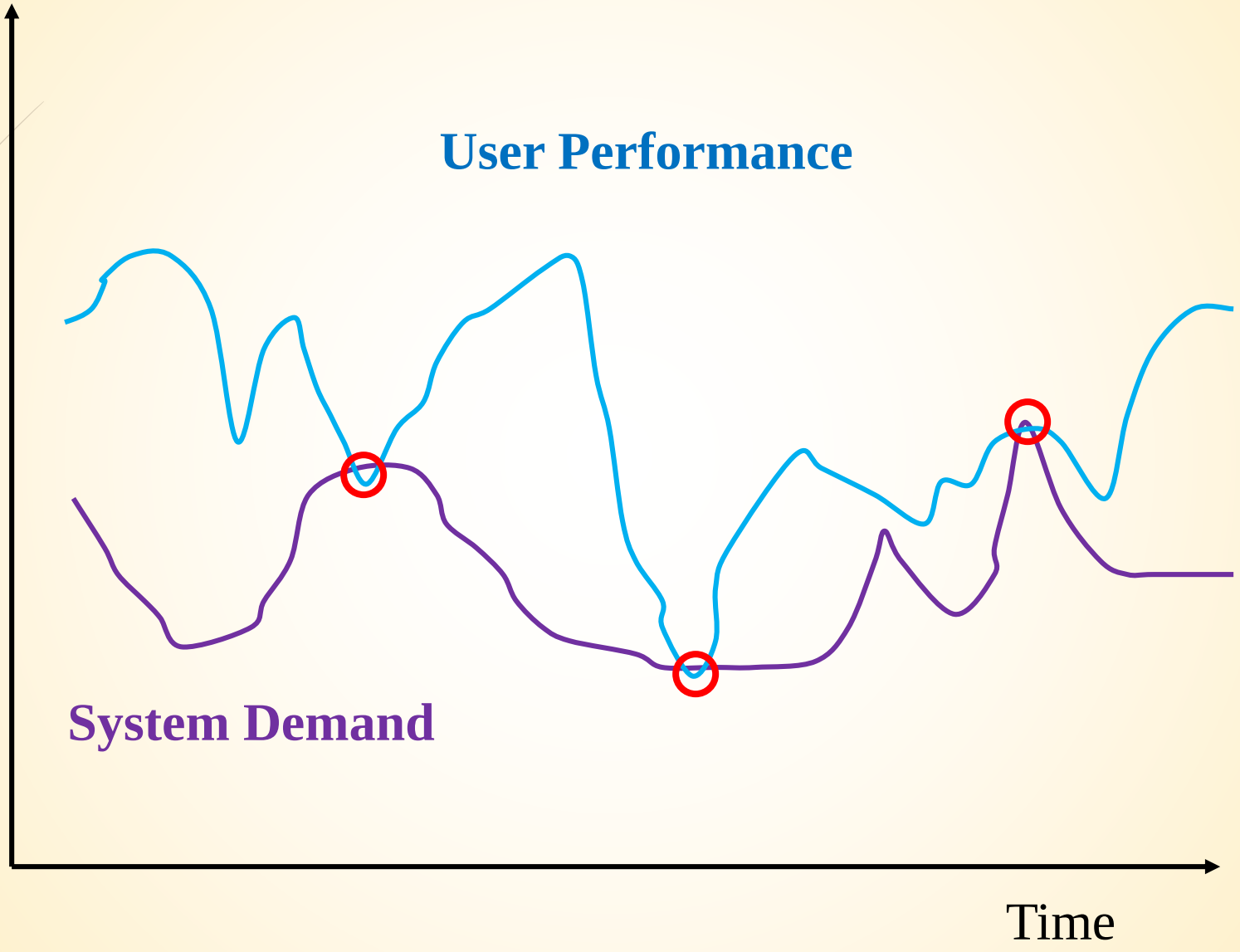
- Focus How and Why an accident happen
- Investigators examine chain of events or circumstances led to the accident
- Focus on finding someone to blame (or punish) for the accident

Modern Approach

- Accept the need to understand causes for accidents in total (system) context
- Identify number of enabling factors that are necessary but itself not sufficient for an accident
  - Human error
  - Equipment failure
  - Latent conditions

What is meant by Road Safety?

- Number of Accidents that occur
- Risk of meeting with an accident
  - Risk for an individual of meeting with an accident
  - Risk that passing road user will generate an accident
- Road user Stress Level
  - Qualitative measure


User Performance
System Demand
Time

Human Error

- Aspect of normal behavior

Human Error

- Aspect of normal behavior
- Unsafe behavior as a result of faulty, uncomfortable or unsafe design or policy

Human Error

- Aspect of normal behavior
- Unsafe behavior as a result of faulty, uncomfortable or unsafe design or policy
- Unsafe behavior due to lack of information

SOFT CODE
INTERNATIONAL

Human Error

- Aspect of normal behavior
- Unsafe behavior as a result of faulty, uncomfortable or unsafe design or policy
- Unsafe behavior due to lack of information
- Risk taking

- Unsafe acts
  - Errors, violations
- Unsafe conditions
  - Action or decision made before an accident

System Defenses

Evaluating Mitigation Options

- All risk mitigation measures may not have same potential for reducing risk.
- Therefore it is necessary to evaluate options available prior to the implementation.

These options could be evaluated with respect to

- Effectiveness
- Cost/benefit
- Practicality
- Challenges & acceptability
- Enforceability
- Durability
- Residual risk and possible new problems.

- Preference should be given to measures that could contribute most towards eliminating risk.

Pre-requisites

- Accident related information
  - Types of accidents
  - Accident locations
  - Causes for accidents
- Traffic flows
- Road inventories
- Socio-economic and demographic information

Analysis of Information

- Identify potential risk factors
- Draw valid conclusions regarding the effectiveness of different strategies

Evaluation

Literary meaning

- the making of a judgement about the amount, number, or value of something; assessment

Sinhala Translation - ඇගයීම්

“Evaluation can be somewhat intimidating and threatening for those who are unfamiliar with its usefulness”

Evaluation

Analytical efforts to answer specific questions about performance of a program activities. Oriented to answering WHY? and HOW?

- Analyses why intended results were or were not achieved
- Explores unintended results
- Assesses causal contributions of activities to results and validate hypothesis
- Examines implementation processes
- Provides lessons learned and recommendations for improvement

Monitoring

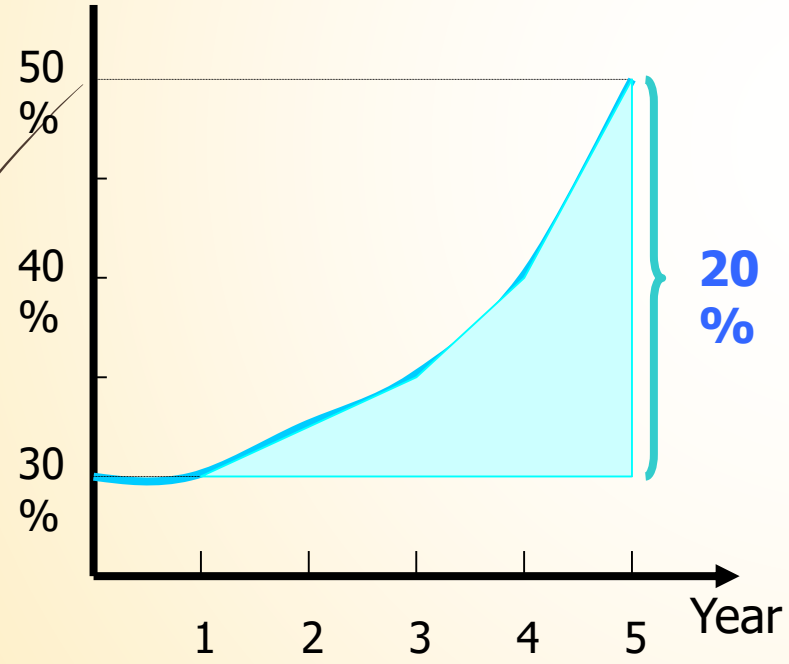
Regular collection and reporting of information to track whether actual results are being achieved as planned

- Analyse why intended results were or were not achieved
- Link inputs and activities to results
- Translates results to be achieved into performance indicators
- Periodically collect data on the indicators and compare actual results with target
- Reports progress and alerts management to problems in implementation

Monitoring vs Evaluation

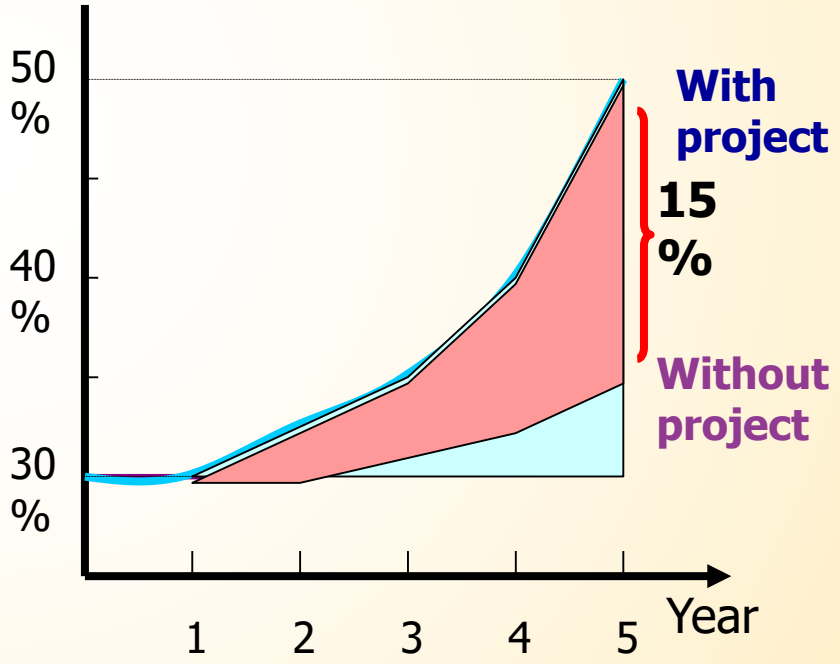
Monitoring

Indicator



Evaluation

Indicator



Jody Zall Kusek & Mohamed Khatouri, World Bank, (2006)

Why M & E ?

Before **intervention**

After **intervention**

Program

- An intervention with the purpose of bringing about a change to a **need** or a **problem**
- Define the purpose-in-life of a program
- Usually consists of number of inter-related activities (projects) that contribute to the program (purpose) results

- **Decade of action for Road Safety – 2011-2020**
- **Road safety programme for school children**

- Need based program is usually perpetual
- Problem based program is usually time bound
- Define the systematic flow & inter-relationship of a program and all actions under it
- Define what a program supposed to focus on and results to produce

Intervention strategies

- A plan, system or course of action or initiatives towards achieving pre-determined outcome and impacts
- Usually comprise of several activities and processes that are linked towards achieving pre-determined targets or results
- Can be time bound or focus based

Current situation in Implementation of Projects/Programmes

Planning

- No vertical or horizontal integration
- Planning for activities or for resource usage
- Short-term focus
- Not grounded in accurate data/information

Implementation

- Focus on activity completion
- Focus on resources use
- No structured or systematic monitoring
- Lack of coordination
- Unreliable data/information for decision making

Results

- Results focused on expenditures or activities completion
- Limited outcome /impact information
- Results are short term focused

Project

- A specific interventional activity under a program
- Usually shorter in time dimension compared to a program
  - Road rehabilitation project
  - Junction improvement
  - Lane marking

Activities & Inputs

- Activity – a set of tasks that need to carried out to produce an outcome
- Task – A sub set of an activity
- Inputs – Resources that are required to carry out a task or activity

Outputs

- Goods and services produced by a programme
- Should be differentiated in terms of process outputs and program outputs
- Process outputs – Outputs produced by a set of activities or processes
- Program outputs – Final outputs that were intended to be produced
- Workloads – service demands
- Outputs – completed process outputs

Outcomes

- The changes or effects of the outputs produce by a program
- Typically associated with each program
- Programs are expected to produce one or more outcomes that are directly linked with the needs/problems
- Generally should occur in the short term

- Focus on outcomes at all phase of the project cycle
- Issues to Consider in Choosing Outcomes
  - Develop a participative approach that includes the views and ideas of key stakeholder groups
- Developing Outcome Statements
  - Outcome Statements are Derived from identified problems or issues
  - Develop indicators from outcomes

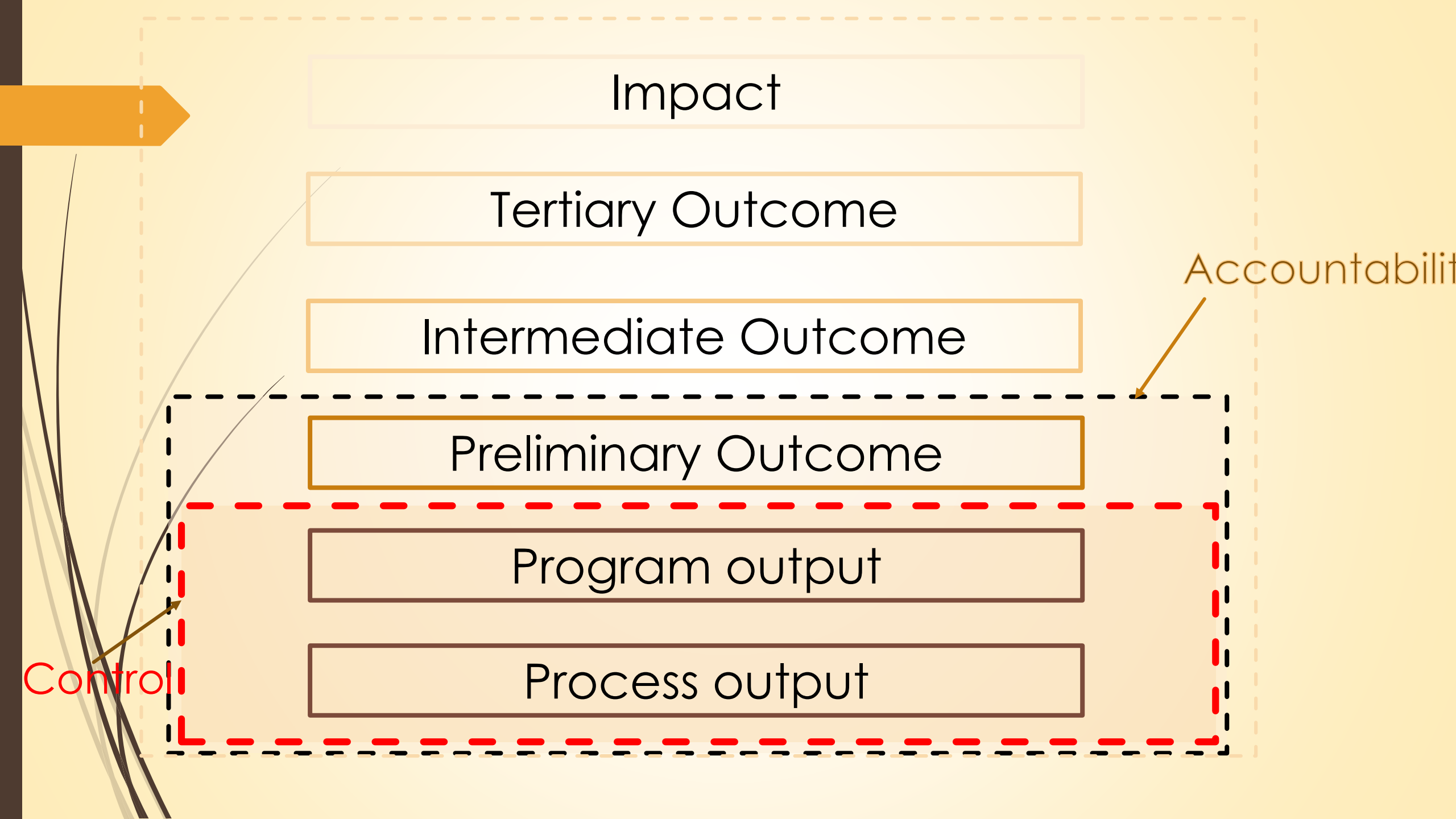
Impact

- The changes or effects that take place as a consequence of one or more outcomes
- Is typically a shared result contributed to by one or more outcomes arising from one or more programs.
- Impact may be long or medium term
- More of a follow-through consequence of one or more outcomes
- Impact can be negative despite a program typically planning for positive impacts

Hierarchy of outcomes

- Preliminary
- Intermediate
- Tertiary

Generally, the program or intervention is held accountable for preliminary outcome/s


Impact
Tertiary Outcome
Intermediate Outcome
Accountabilit
Preliminary Outcome
Program output
Process output
Contro

Results Based Management (RBM)

- A shift from focusing on the inputs and activities (the resources and procedures) to outputs, outcomes and impacts (the results).
- Results are the changes occurring as an effect of a development intervention

Results

- Output
  - Immediate products of project activities
- Outcomes
  - Interim results (objectives) achieved by the outputs (The desired future state of a threat or opportunity factor.
  - An objective is a formal statement of the desired outcome).
- Impact
  - Desired end goals of the project.
  - A goal is a formal statement of the desired impact.

Results

- Results Focus on the main target group
- Results have to be SMART
  - S – Specific
  - M – Measurable
  - A – Achievable
  - R – Relevant
  - T – Time - Bound

Targets & Baselines

- Target – A pre determined level or degree of achievement
- Baseline – Prevailing or existing level of performance in a particular result area
- Baseline year – A pre-determine point in time where the prevailing performance level for a result area is established

Performance indicators

- The means to show evidence that a program has achieved its intended or planned results
- A means to measure achievement, or to help assess a development

- Indicators should be developed for all levels of the results-based M&E system
- Indicators are needed to monitor progress with respect to inputs, activities, outputs, outcomes, and goals.
- Progress needs to be monitored at all levels of the system to provide feedback on areas of success and areas in which improvement may be required.

Performance indicators should be clear, relevant, economic, adequate, and monitorable – CREAM

- **C**lear — Precise and unambiguous
- **R**elevant — Appropriate to the subject at hand
- **E**conomical — Available at a reasonable cost
- **A**dequate — Provide a sufficient basis to assess performance
- **M**onitorable — Amenable to independent validation

Assumptions

- Conditions essential to achievement of expected results, that are likely to happen, but are beyond direct control of the program

Risks

- Factors that could negatively affect achievement of results

IRBM

- **Integrated Development Planning**
  - Systematic & structured approach with full vertical-horizontal integration and focus on program outcomes and impacts
- **Results based Budgeting**
  - Provides an integrated outcome-based program budgeting system for planning & management of financial resources to turn policies into reality
- **Personnel Performances**
  - Ensures personnel performance at every level is linked systematically with substantive program performances
- **Monitoring & Evaluation**
  - Mandate structured monitoring & evaluation to support systematic program performance management
- **Management Information**
  - Provides critical information to support informed decision making for program improvement and adjustment to strategies & policies

Action Plan

- National council for road safety has had compiled large number of activities under number of different strategies, categorized into four groups as the action plan for road safety.
- In April 2011, these activities were rearranged under five pillars to be in line with the UN initiative of the Decade of Action for Road Safety.

- This revised list was fine tuned after a stakeholder workshop conducted by the National Council for Road Safety in association with the WHO.
- The amended list of actins was distributed to the participants of the National Road Safety Conference & Launch of Decade Action for Road Safety on 11th May 2011 as a draft action plan.

Pillar 1: Build road safety management capacity

The creation of multi-sectoral partnerships and designation of lead agencies with the capacity to devel evidential research to assess countermeasure design and, monitor implementation and effectiveness.

	Strategies		Major Activities	Lead Agency	Partner Agency 1
A	Conversion of the established national council for road safety to an authority to act as the lead agency with implementation powers	1A1	Establishment of the authority by amendments to the act with inclusion of key ministries including health.		
		1A2	Strengthening of the NRSC with the necessary infrastructure, HR and training needs		
		1A3	Advocating for a separate consultative sub- committee for Road Safety		
		1A4	Developing a national policy & strategy for road safety		

Category	Description
Pillar 1	Build road safety management capacity
Pillar 2	Influence safety road design and network management
Pillar 3	Influence vehicle safety design
Pillar 4	Influence road user behavior
Pillar 5	Improving Post Crash Care

Pillar 1: Build road safety management capacity

The creation of multi-sectoral partnerships and designation of lead agencies with the capacity to develop national road safety strategies, pla
evidential research to assess countermeasure design and, monitor implementation and effectiveness.

A	Conversio national c authority t with imple

Pillar 2 : Influence safety road design and network management

Using road infrastructure assessment rating and improved design to raise the inherent safety and protective quality of roa

A	Improve S design sta effect impr

Pillar 3: Influence vehicle safety design

Global deployment of improved vehicle safety technologies for both passive and active safety through a combina
and incentives to accelerate the uptake of new technologies

A	Improve the

Pillar 4: Influence road user behavior

Sustained enforcement of road traffic laws and standards and rules combined with public awareness/ed
regulations that reduce the impact of the key risk factors (speeding, drink driving, non use of motorcyc

A	Improved s monitoring l

Pillar 5: Improving Post Crash Care

Increase responsiveness to emergencies and improve the ability of health systems to provid

	Strategies				Major Activities	Lead Agency
A	Establish the roads	4A3	Proving capabilities for a higher grade	5A1	High level advocacy to establish a focal unit	
A7	Providing a sound financial		lines/cycle lane/pedestrian to be			
		4A4	Avoiding delays in issuing licenses	5A2	Separate financial allocation made to implement central functions	
					of strategic plan	
		4A5	Driving license for commercial and heavy vehicles to be made	5A3	Create separate cadre including a Director for infury prevention	

Pillar	Strategies	Number of Activities
Safety Management	6	20
Road	7	37
Vehicle	5	21
Road User	11	73
Post Crash Care	6	28
Total	35	179

- As these actions/activities have been there for a long period of time some of them were appeared to be outdated and some need amendments to suit present conditions.
- In addition due to the large number of activities listed and many stakeholders have been identify for a single activity it was decided to update the list of activities and to prepare an updated action plan.

- A number of parameters were considered when updating the activities. They are:
  - Lead Agency
  - Partner agency
  - Expected outcome
  - Effectiveness
  - Cost
  - Key performance Indicator(s)
  - Time line

Lead Agency	Identify the institution/establishment that should take to primary responsibility of the identified activity. You may use the abbreviation suggested. If the organization is not listed, use the full name
Partner agency	Institution/organization that should work closely with the lead agency to achieve the objective. Use the same abbreviations
Expected outcome	Indicate what can be expected as the outcome of the proposed activity if fully implemented. Leave blank if you are not sure
Effectiveness	Effectiveness of the expected outcome towards improving overall road safety, reducing road accidents and injuries. H - Highly Effective, M- Moderately effective, L - Less effective
Cost	Expected cost/resource requirement to implement the identified activity. H - High cost, M- Moderate cost, L - Low cost
Key performance Indicator(s)	How the effectiveness of the activity can be measured or evaluated. This should be an **output** related parameter. Leave blank if you are not sure
Time line	Time period required to successfully implement the activity. L- long term, M- Medium term, S - Short term

Thank you