Monitoring & Evaluation of Resilience

Nathan Engle
Senior Climate Change Specialist
The World Bank

January 18, 2017

LEDS LAC Webinar

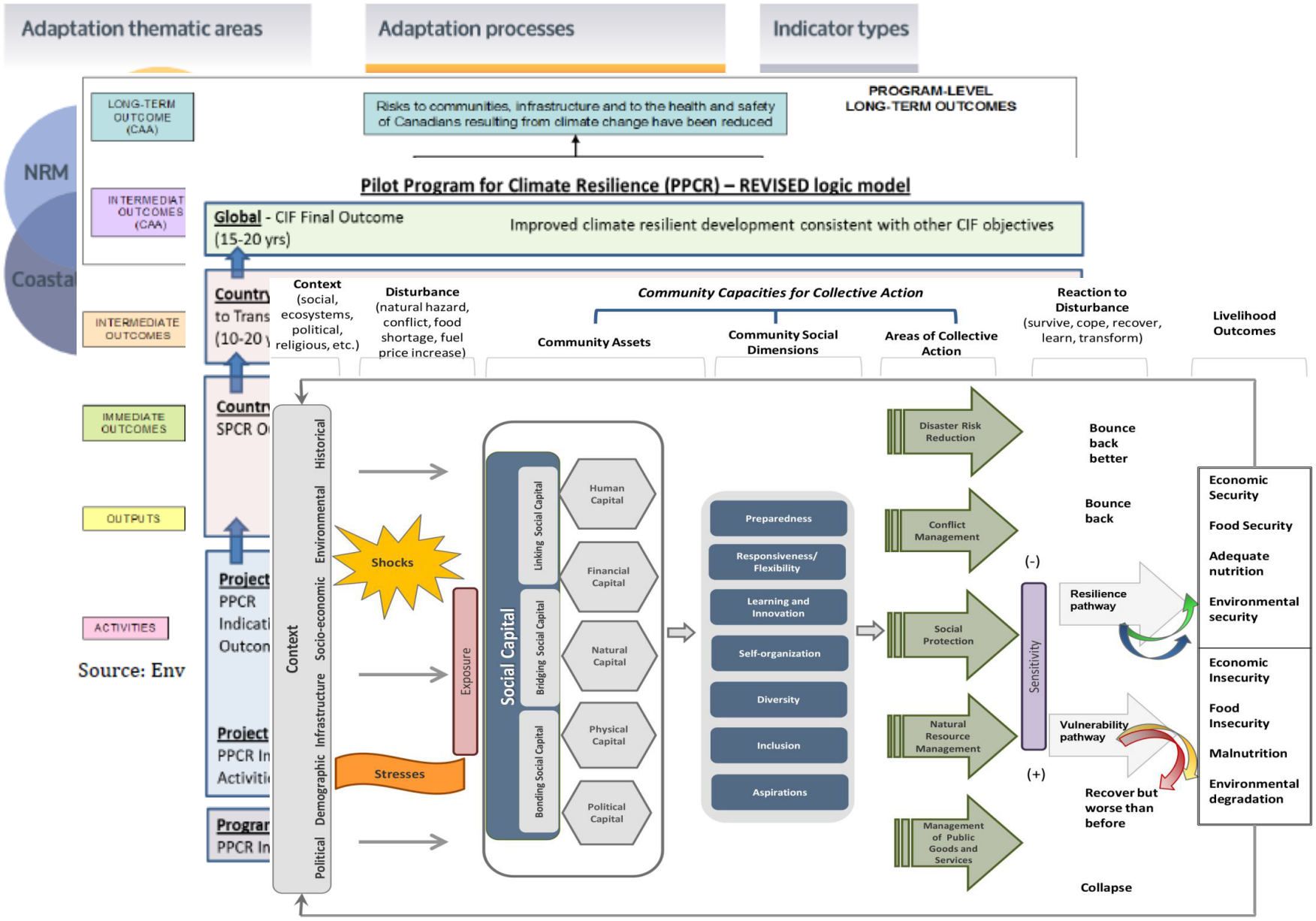
Context

- (I)NDCs show adaptation needs are massive and global investments are increasing
- Demand for understanding progress
- Learn about the interventions that work (or not) and the lessons that can be shared
- Challenges and opportunities in resilience M&E

(I)NDC Summary Statistics by Region

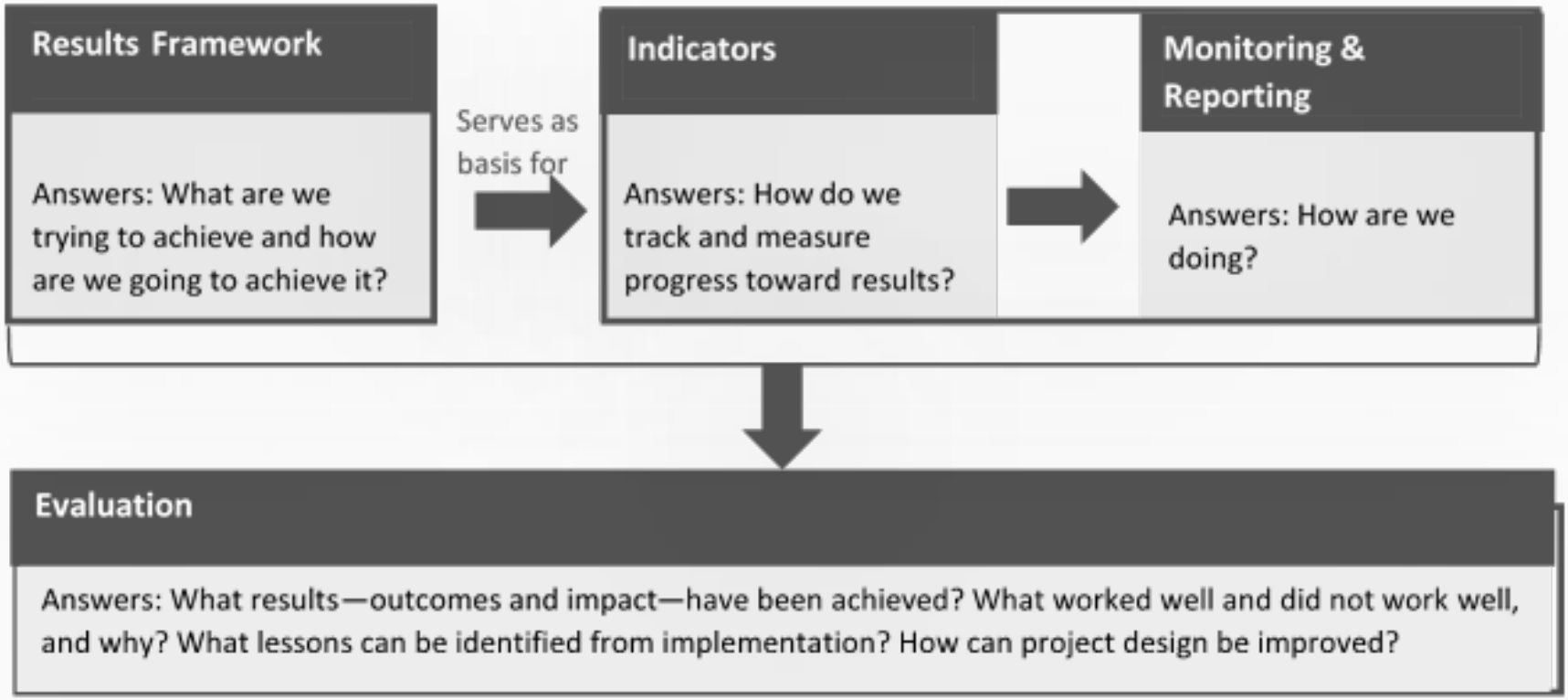
Questions	SAR	EAP	ECA	LAC	MENA	SSA
Number of (I)NDCs Analyzed	7	24	16	31	17	48
Number of Countries that Include Mitigation	7	24	16	31	17	48
Number of Countries that Include Adaptation	7	19		30	16	48
Number of Countries with Economy-wide Targets	6	12	16	22	12	39
Number of Countries with Unconditional Targets	3	9	9	12	10	16
Number of Countries with Conditional Targets	4	11	9	16	11	33
Number of Countries Providing Estimated Total Implementation Cost as Self-reported in (I)NDCs	3	5		6	3	34
Total Implementation Cost as Self-reported in (I)NDCs *(in USD Billion)*	2581.7	10.8		31.6	98.8	2428.9
Number of Countries Providing Estimated Total Implementation Cost for Mitigation Component as Self-reported in (I)NDCs	3	5	3	7	5	30
Total Implementation Cost for Mitigation as Self-reported in (I)NDCs *(in USD Billion)*	864.9	5.1	11.6	29.7	143.7	1789
Number of Countries Providing Estimated Total Implementation Cost for Adaptation Component as Self-reported in (I)NDCs	4	5		5	2	26
Total Implementation Cost for Adaptation as Self-reported in (I)NDCs *(in USD Billion)*	257.2	4.6		19.4	2.8	484.8

Estimated costs to implement the (I)NDCs in IDA countries are between $800 to 900 billion by 2030 – or up to $60 billion a year through 2030.


Adaptation thematic areas
Adaptation processes
Indicator types
NRM
Coastal
LONG-TERM OUTCOME (CAA)
INTERMEDIAT OUTCOMES (CAA)
INTERMEDIATE OUTCOMES
IMMEDIATE OUTCOMES
OUTPUTS
ACTIVITIES
Source: Env
Risks to communities, infrastructure and to the health and safety of Canadians resulting from climate change have been reduced
PROGRAM-LEVEL LONG-TERM OUTCOMES
Pilot Program for Climate Resilience (PPCR) – REVISED logic model
Global - CIF Final Outcome (15-20 yrs)
Improved climate resilient developement consistent with other CIF objectives
Context (social, ecosystems, political, religious, etc.)
Disturbance (natural hazard, conflict, food shortage, fuel price increase)
Community Capacities for Collective Action
Community Assets
Community Social Dimensions
Areas of Collective Action
Reaction to Disturbance (survive, cope, recover, learn, transform)
Livelihood Outcomes
Historical
Environmental
Socio-economic
Infrastructure
Demographic
Political
Context
Shocks
Stresses
Exposure
Social Capital
Linking Social Capital
Bridging Social Capital
Bonding Social Capital
Human Capital
Financial Capital
Natural Capital
Physical Capital
Political Capital
Preparedness
Responsiveness/ Flexibility
Learning and Innovation
Self-organization
Diversity
Inclusion
Aspirations
Disaster Risk Reduction
Conflict Management
Social Protection
Natural Resource Management
Management of Public Goods and Services
(-)
(+)
Sensitivity
Resilience pathway
Vulnerability pathway
Bounce back better
Bounce back
Recover but worse than before
Collapse
Economic Security
Food Security
Adequate nutrition
Environmental security
Economic Insecurity
Food Insecurity
Malnutrition
Environmental degradation

LEVEL / topic (shorthand)	Institution/Effort						
TRANSFORMATION / PARADIGM SHIFT	**AF**	**DFID**	**GCF**	**GFDRR**	**LDCF/SCCF**	**PPCR**	**TAMD**
Transformational impact		✓					
Climate-resilient sustainable development			✓			✓	
IMPACT	**AF**	**DFID**	**GCF**	**GFDRR**	**LDCF/SCCF**	**PPCR**	**TAMD**
Human resilience		✓	✓	✓			✓
Livelihoods (Jobs and Income)	✓	✓	✓		✓	✓	
Physical/Assets/Economic Losses and Damages	✓		✓	✓	✓	✓	
Water access			✓			✓	
Health measures			✓				
Food Security			✓				
Social, environmental, economic co-benefits			✓				
OUTCOME	**AF**	**DFID**	**GCF**	**GFDRR**	**LDCF/SCCF**	**PPCR**	**TAMD**
Beneficiaries	✓	✓	✓		✓	✓	
Policies, Regulations, & Planning		✓	✓	✓	✓	✓	✓
Institutional Coordination & Systems					✓	✓	✓
Finance & Investments leveraged		✓		✓		✓	
Risk Identification & Risk Reduction Mechanisms				✓	✓		
Institutional Capacity and Knowledge		✓		✓	✓		✓
Technologies & Innovative Solutions			✓		✓		
Preparedness / Early Warning Systems	✓		✓	✓	✓		
Risk Financing & Insurance				✓			
Monitoring and Reporting Systems					✓		
Awareness & Decision-Making			✓	✓	✓	✓	✓
Development & Use of Tools and Products			✓			✓	
Ecosystems & Habitats	✓	✓	✓				
Financial Support				✓		✓	✓
OUTPUT	**AF**	**DFID**	**GCF**	**GFDRR**	**LDCF/SCCF**	**PPCR**	**TAMD**
Training					✓		✓
Supported Entities				✓			
Stakeholder Participation							✓

Primary Components of an M&E System



Resilience M&E Basics

- Definitions
  - **People, economic assets and bio-physical systems** (e.g., ecosystems and physical infrastructure) at different-levels (farm/household, community, cities, provinces, state, country) exposed to a hazard
  - **Ability and/or capacity to anticipate, respond, and recover** from hazards in a way that maintains, if not improves, welfare, assets, structures and functions
  - **Hazards through shocks and stresses,** which in the context of climate change and natural disasters can be caused by acute, high impact extreme events and slow-onset, long-term climatic changes.
- Main Concepts
  - **Protection** from impacts through reduced exposure of people, assets and systems to hazards
  - **Robustness** of assets and systems to withstand hazards without degrading the structure or function of the system
  - **Preparedness** of people, assets and systems to manage and respond to hazards without impacts
  - **Recovery** of people, assets and systems from impacts caused by hazards
  - **Diversity/redundancy, integration/connectedness and flexibility** of a system to avoid and manage impacts from hazards
  - **Capacity for adaptation, learning and transformation** to change the current system to be better able to avoid and manage future hazards and impacts

Unique Challenges and General Principles for Resilience M&E

- Challenges
  - Wicked problems – creative, adaptive solutions needed
  - Methodological difficulties
  - Young field (but evolving quickly)
- Principles
  - Build innovative and flexible M&E systems that can be improved over time and shift M&E from solely focusing on accountability to deliver results to also embrace learning as an objective
  - Integrate multi-dimensionality, interactions and feedback-loops
  - Emphasize local-context and beneficiary focus, building on participatory approaches
  - Consider building from existing reporting frameworks, systems, and requirements to keep data and capacity needs manageable

World Bank Approach

World Bank effort on ***Results monitoring and impact evaluation for climate and disaster resilience-building operations ("ReM&E")***

Objectives:

1. Improve results monitoring and reporting of resilience-building operations through theories-of-change, indicators, and measurement methodologies
2. Increase application of evaluation studies in resilience-building operations through technical toolkits, guidance notes, and targeted technical support
3. Enhance harmonization of existing M&E frameworks of climate- and disaster-related funds and initiatives and alignment of WB work streams

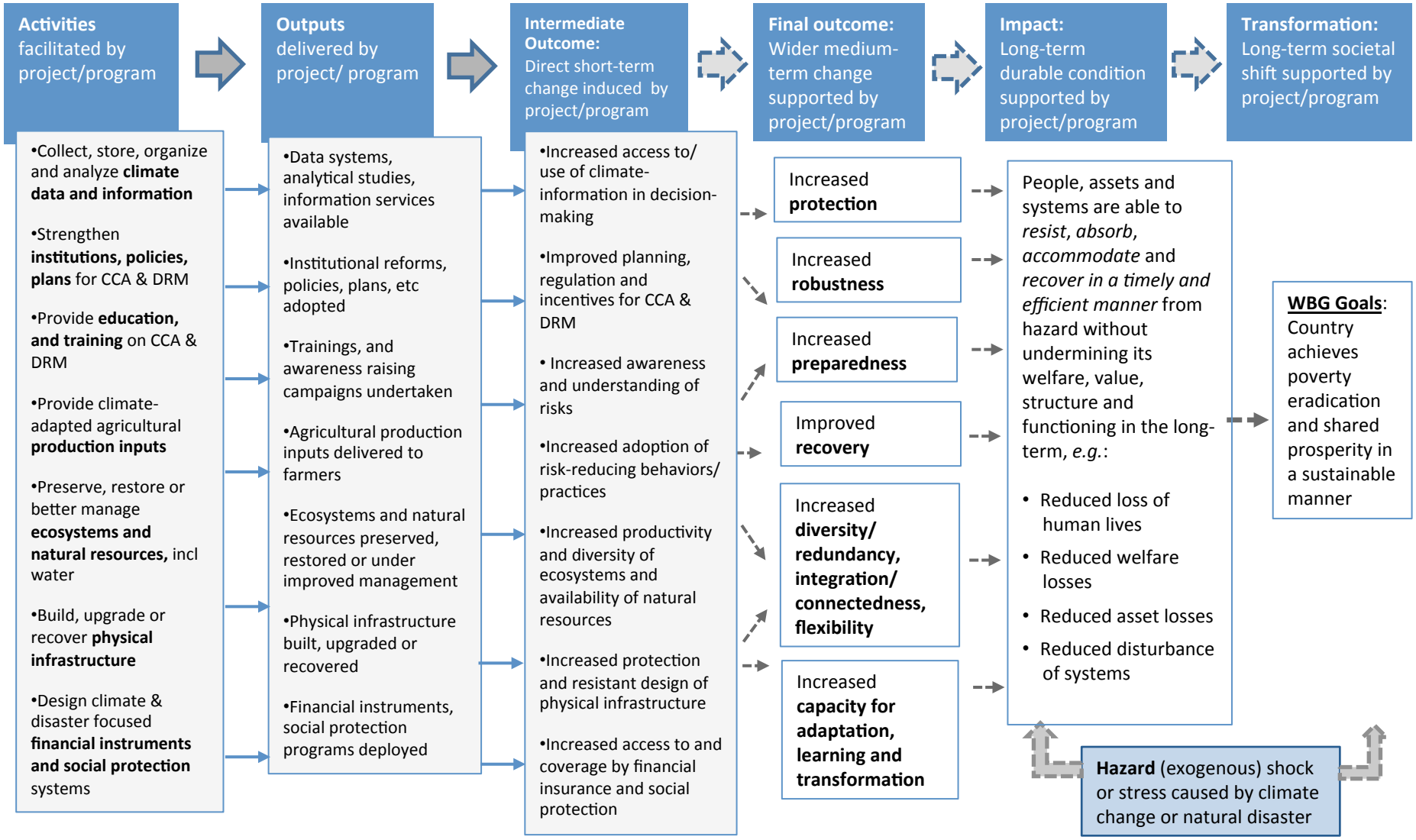
Sector-Focused Process

- Working groups to systematize (where possible) the variety of approaches to resilience M&E within (and across) sectors
- Sector-specific guidance to integrate resilience considerations into project-level M&E designs, including through:
  - Simple, illustrative, theory-of-change based results chains
  - Indicator menus
  - Indicator definitions and measurement methodologies
- Showcase best practice examples and lessons learned from existing resilience-focused M&E applications

Sector-Focused Process

1. Agriculture and rural livelihoods
2. Energy and mining
3. Environment and natural resources
4. Transportation
5. Urban development and housing
6. Water supply and sanitation
7. Water, flood and drought management
8. Cross-cutting themes (e.g. disaster risk management, information systems, etc.) and other sectors of relevance (e.g. social protection)

Resilience Results Chain Example (Simplified)



Indicators	Sector
- Number of agricultural households that received support to deal with disaster/climate shocks - Agricultural area under climate/disaster resilient production practices	Agriculture & Rural Development
- Number of power supplies restored to pre-climate/disaster emergency levels	Energy & Mining
- Area of beach front restored/improved/protected - Number of tree species in replanted/rehabilitated forests	Environment & Natural resources
- % communities which demonstrate capacity to implement community-based CCA/DRM plans	Social Development
- Number of days of interrupted traffic due to disaster/climate related events - Kilometers of roads constructed/rehabilitated under resiliency standards	Transportation
- Number of officials/stakeholders/experts trained in the use of urban CCA/DRM planning tools	Urban Development
- Number of people/households/communities benefitting from improved flood protection - Area of protected/restored wetlands in climate/disaster risk areas	Water, Flood and Drought Management
- Number of climate/disaster resilient drinking water sources rehabilitated/developed - Number of households with uninterrupted water service in during climate/disaster events	Water Supply and Sanitation
- Number of people/households/communities benefitting from CCA/DRM project activities - Average income from climate/disaster insensitive activities - Number of people/households with access to climate/disaster information and data	Cross-cutting

Opportunities for Resilience M&E

- Piloting
- Testing
- Learning

CONTACT

Nathan Engle: nengle@worldbank.org