

Theory-Based Approaches for Assessing the Impact of Integrated Systems Research

Presentation to WLE-FTA-PIM-SPIA Workshop
Measuring the impact of integrated systems research

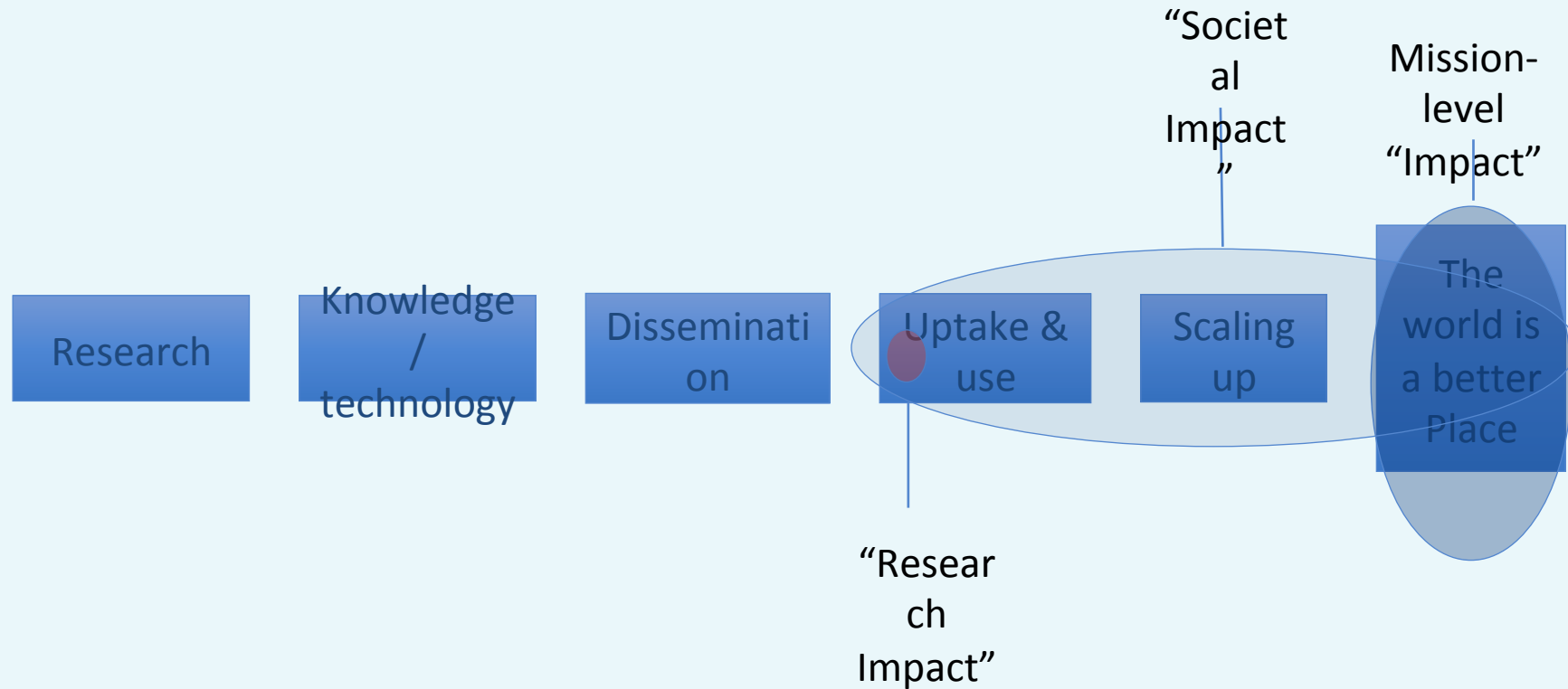
September 27-30, 2021

Prof. Brian Belcher
Royal Roads University

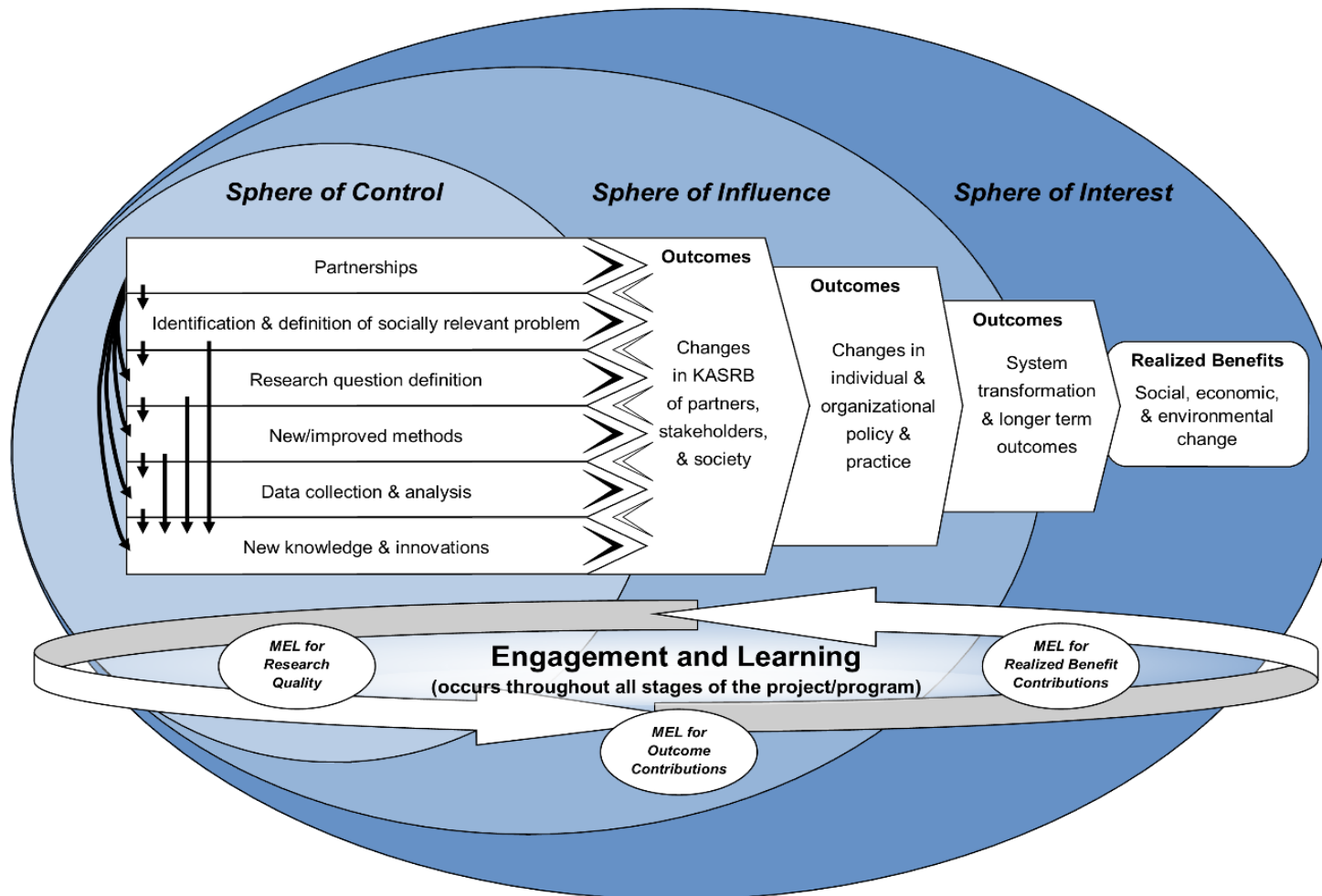
Evolving Nature of Research

- Evolution in research approaches (Mode 2, Problem-oriented research, Utilization-focused research, TDR, Sustainability Science, Integrated Systems Research, etc.)
- Solution-oriented; complexity-aware; attention to engagement, social processes
- Also in CGIAR (partnerships, engagement, co-generation, systems, ToC)
- Commensurate need for evolution in research evaluation

DEFAULT RESEARCH TOC ("PIPELINE MODEL")



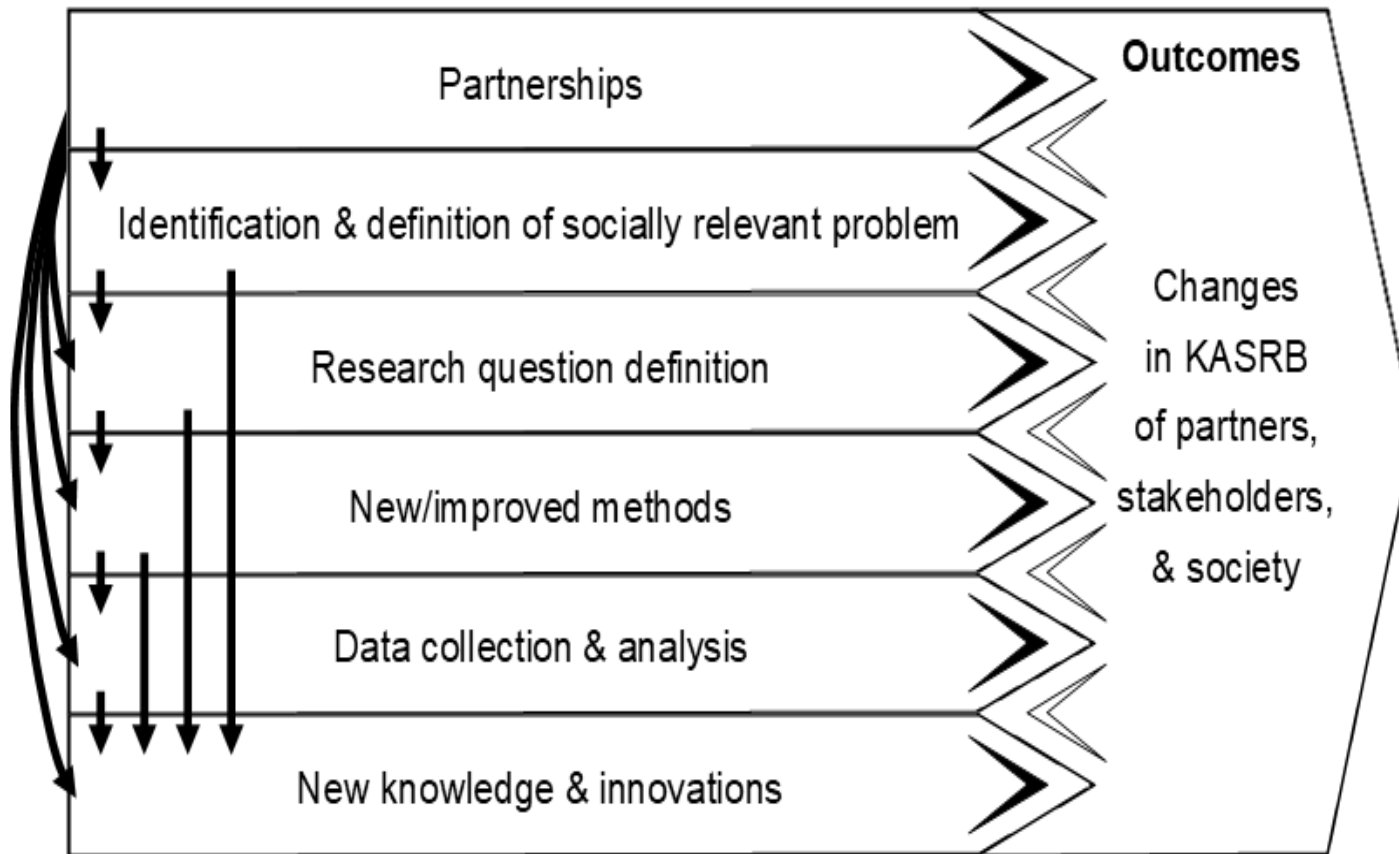
Research for Development Theory of Change



KASRB = knowledge, attitudes, skills, relationships, &/or behaviour

MEL = monitoring, evaluation, & learning

Project/Program Contributions



KASRB = knowledge, attitudes, skills, relationships, &/or

Give an example of an outcome in integrated systems research

Name actor/actor group, action/behaviour, and research influence:

Examples

1. Civil society organizations advocate for policy reform supported by research-based knowledge
2. Private companies modify commodity purchasing policies based on learning from multi-stakeholder forum

n.b. Outcome defined as change in KASR manifest as a change in behaviour.

How Research Contributes

Knowledge Contributions

- Problem identification and conceptualization
- Theoretical and/or empirical analysis of the problem
- Develop and provide technical solutions
- Provide evidence-based recommendations & guidance for improved policy & practice
- Improve theory, methodology and methods

How Research Contributes (cont.)

Capacity & Process Contributions

- Build scientific capacity
- Co-generate knowledge
- Build social capacity, empowerment
- Provide fora and/or facilitate negotiated solutions
- Build linkages/relationships between key system actors
- Support institutions
- Influence policy & practice through multiple inter-linked pathways
- Influence research agendas

CGIAR Impact Assessment

- Pipeline model still predominant
- Focus on “innovations” (technologies, tools, institutions)
- Evaluation of uptake and use, scaling & measurable benefits using:
 - Statistical association between cause and effect (Regularity framework)
 - Experimental; quasi-experimental method (Counterfactual framework)
- These methods are not appropriate for systems research, TDR (can't control intervention; small n)
- Use theory-based evaluation (Generative Framework)

Some Theory-Based Evaluation Approaches

- Process Tracing (Beach & Pedersen 2019)
- Realist Evaluation (Pawson 2013)
- Social Impact Assessment (SIAMPI) (Spaapen & van Drooge 2011)
- Outcome Mapping (OM) (Earl et al 2001)
- Contribution Analysis (CA) (Mayne 2012)
- RAPID Outcome Assessment (ODI 2012)
- Payback Framework (Buxton and Hanney 1996)
- Impact Pathway Evaluation (Douthwaite et al 2003)
- ImpresS (Blundo-Canto et al 2020)

Mechanisms

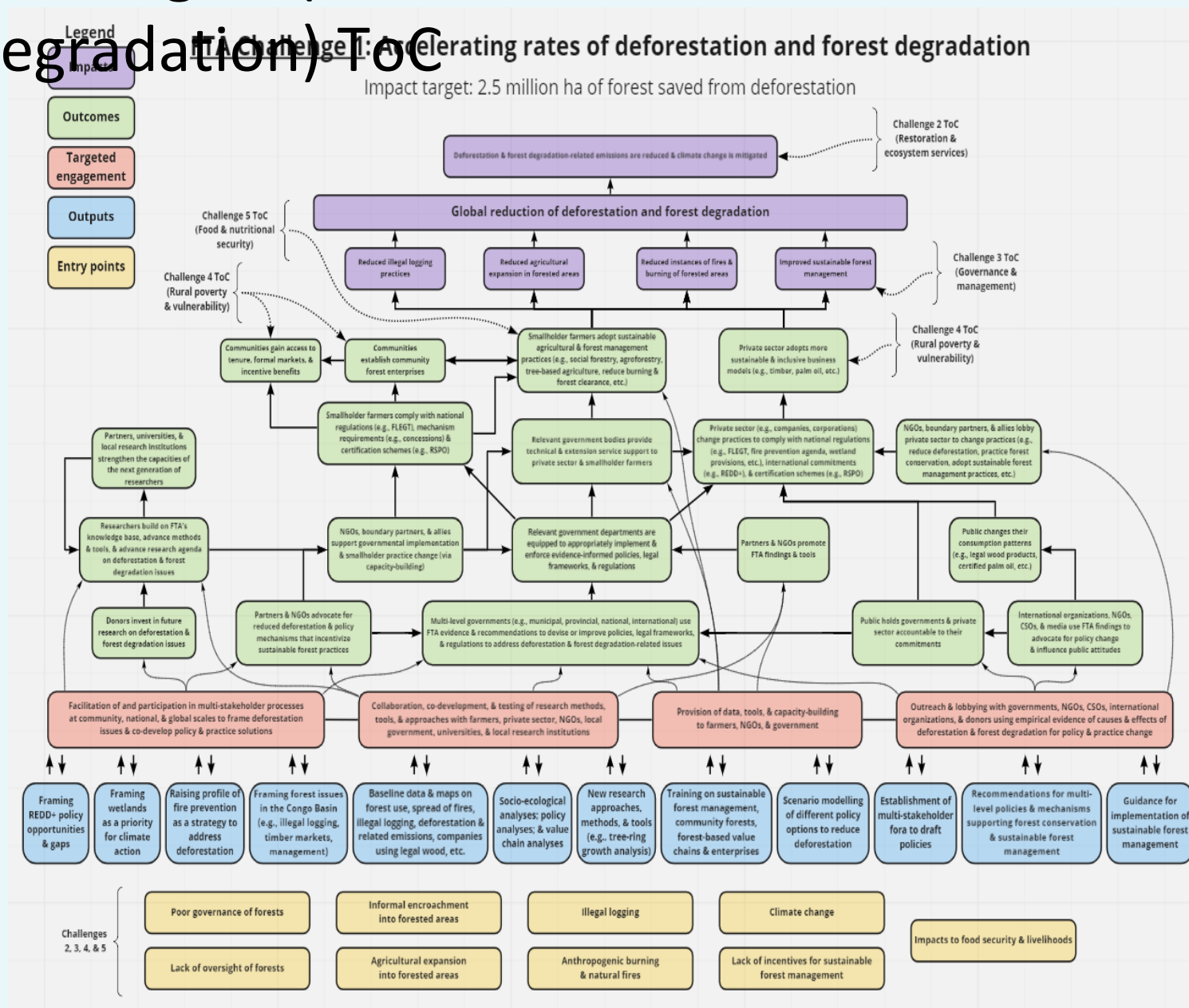
ToC

FTA THEORY-BASED EVALUATION

- Document the theory of change
- Identify priority impact pathways for analysis
- Collate available evidence for each key step
- Collect additional data necessary to test each step
- Investigate “mechanisms” to explain how outcomes were realized
- Articulate and test alternative hypotheses

Belcher et al, 2020

Challenge 1 (Deforestation and Forest Degradation) ToC



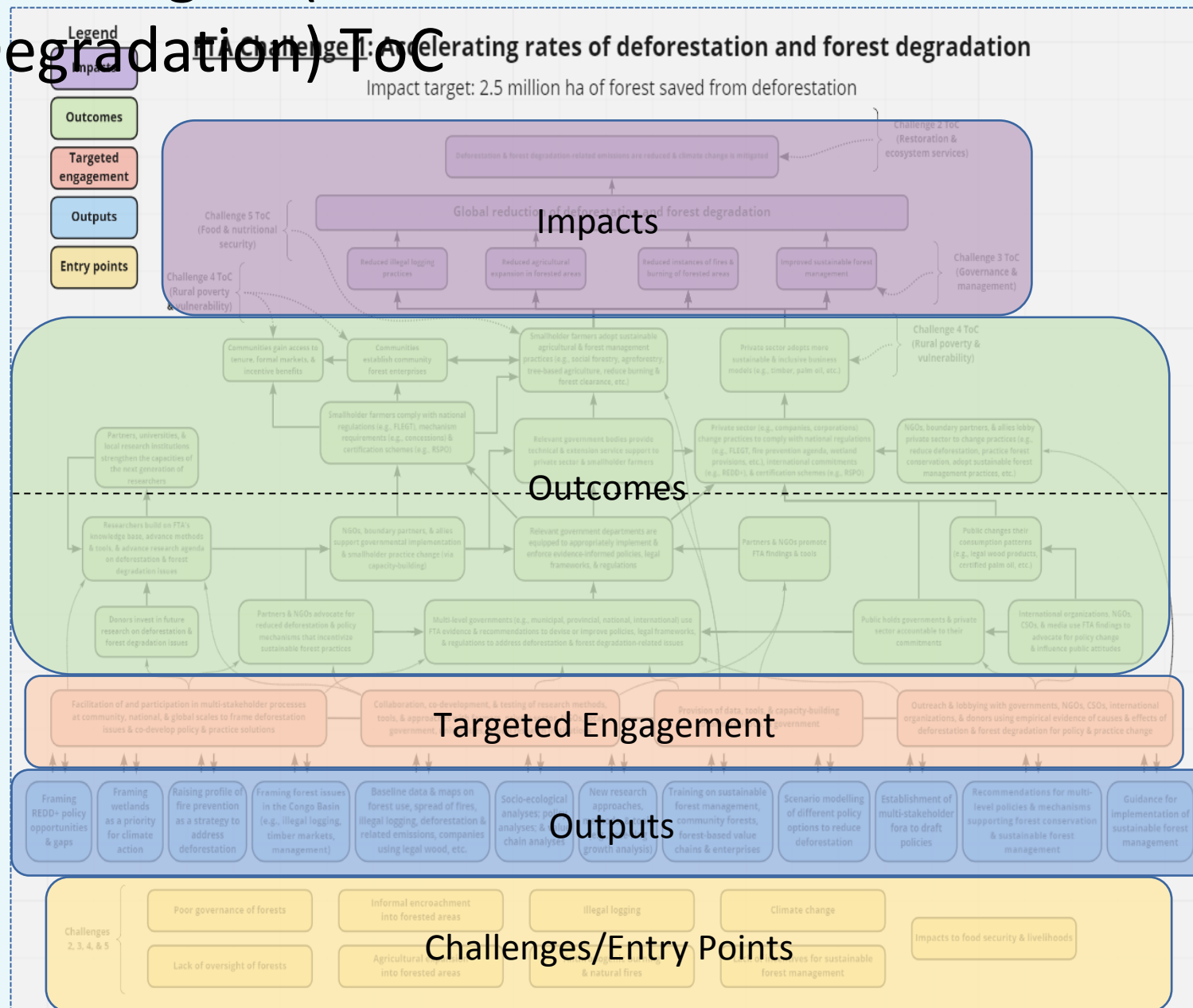
Challenge 1 (Deforestation and Forest Degradation) ToC

Impact target: 2.5 million ha of forest saved from deforestation

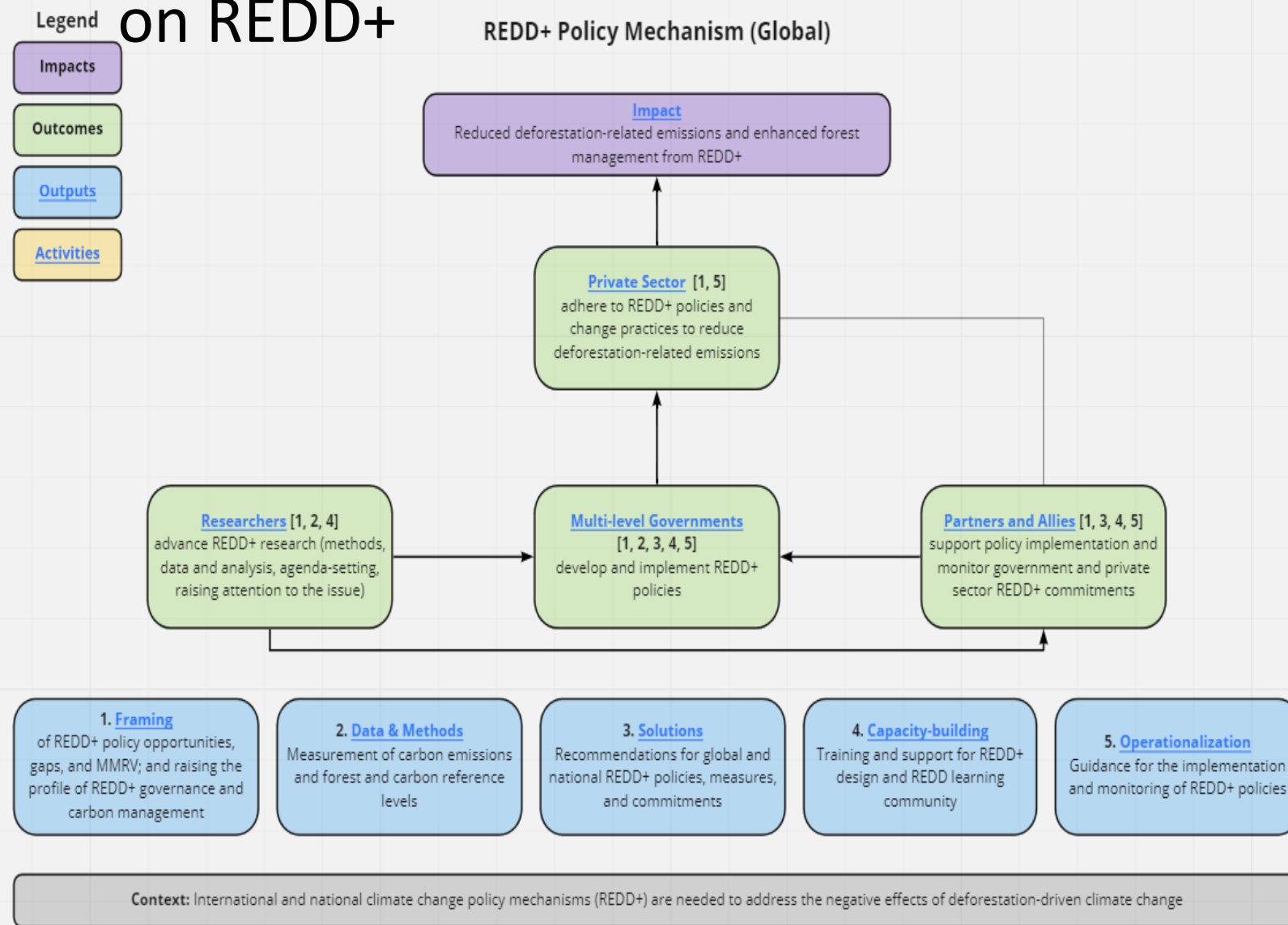
Impact target: 2.5 million ha of forest saved from deforestation

Higher-level Outcomes

End-of-Project Outcomes



Cluster-level sub-ToC for FTA research on REDD+



CONTRIBUTION ANALYSIS

A contribution claim can be made if:

1. The ToC is logical
2. The results are supported by evidence
3. Other potential influencing factors have been assessed and either:
 - a. recognized as contributors, or;
 - b. rejected as insignificant

Challenges and Opportunities

- Developing high-quality ToCs
 - System-oriented (as opposed to research-centric)
 - Realistically account for other key processes and system actors
 - Outputs as products **and** services
 - Specifying outcomes
 - Building theory into assumptions
 - Ensure causal logic is sound (no miracles allowed)
- Using and updating ToCs
- Identifying appropriate metrics/indicators for multiple outcomes
- Dealing with the lack of a counterfactual
- Maintaining rigour

References and Resources

Belcher, B. M., Davel, R., & Claus, R. (2020). A refined method for theory-based evaluation of the societal impacts of research. *MethodsX*, 7, 100788.

Belcher, B. M., & Hughes, K. (2020). Understanding and evaluating the impact of integrated problem-oriented research programmes: Concepts and considerations. *Research Evaluation*, 1, 15.

Belcher, B. & Palenberg, M. (2018). Outcomes and Impacts of Development Interventions: Toward Conceptual Clarity. *American Journal of Evaluation*, 39(4), 478-495.

Blundo-Canto, G., Devaux-Spatarakis, A., Mathé, S., Faure, G., & Cerdan, C. (2020). Using a participatory theory driven evaluation approach to identify causal mechanisms in innovation processes. *New Directions for Evaluation*, 2020(167), 59-72.

Buxton, M., & Hanney, S. (1996). How can payback from health services research be assessed?. *Journal of health services research & policy*, 1(1), 35-43.

Douthwaite, B., Kuby, T., van de Fliert, E., & Schulz, S. (2003). Impact pathway evaluation: an approach for achieving and attributing impact in complex systems. *Agricultural systems*, 78(2), 243-265.

Earl, S., Carden, F. & Smutylo, t. (2001). *Outcome Mapping: Building Learning and Reflection into Development Programs*. Ottawa: International Development Research Centre.

Mayne, J. (2012). Contribution analysis: Coming of age?. *Evaluation*, 18(3), 270-280.

ODI (2012). RAPID Outcome Assessment. Retrieved from <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7815.pdf>

Pawson, R. (2013). *The science of evaluation: a realist manifesto*. sage.

Spaapen, J., & Van Drooge, L. (2011). Introducing 'productive interactions' in social impact assessment. *Research evaluation*, 20(3), 211-218.

Stern, E., Stame, N., Mayne, J., Forss, K., Davies, R., & Befani, B. (2012). Broadening the range of designs and methods for impact evaluations.

Stevenson and Velk (2018). *Assessing the Adoption and Diffusion of Natural Resource Management Practices: Synthesis of a New Set of Empirical Studies*. Rome: Independent Science and Partnership Council (ISPC).

Sustainability Research Effectiveness website: www.researcheffectiveness.ca