

### Background

- Ecosystem restoration is critical for mitigating climate change impacts and achieving multiple Sustainable Development Goals<sup>1</sup>.
- Global targets and agreements such as the Aichi Target 15 of the Convention for Biological Diversity (CBD) and the Bonn Challenge have aimed to restore landscapes on a large scale<sup>2</sup>.
- Systematic efforts to map the areas with restoration potential indicate that a majority of these are in the in countries of the global South<sup>3</sup>. Given this attention to restoration in the coming decades, there is urgency in projecting how these restoration processes will unfold.
- Literature shows that there are both costs and benefits associated with restoration processes<sup>4</sup>. Yet, there is a limited clarity on what drives people's participation and on who sets the rules for restoration activities.

### Research aims

This PhD research aims an understanding of what drives restoration in different socio-ecological contexts, within India and Brazil. Both countries are significant contributors to global restoration goals but have very different experiences of ecosystem restoration to date.

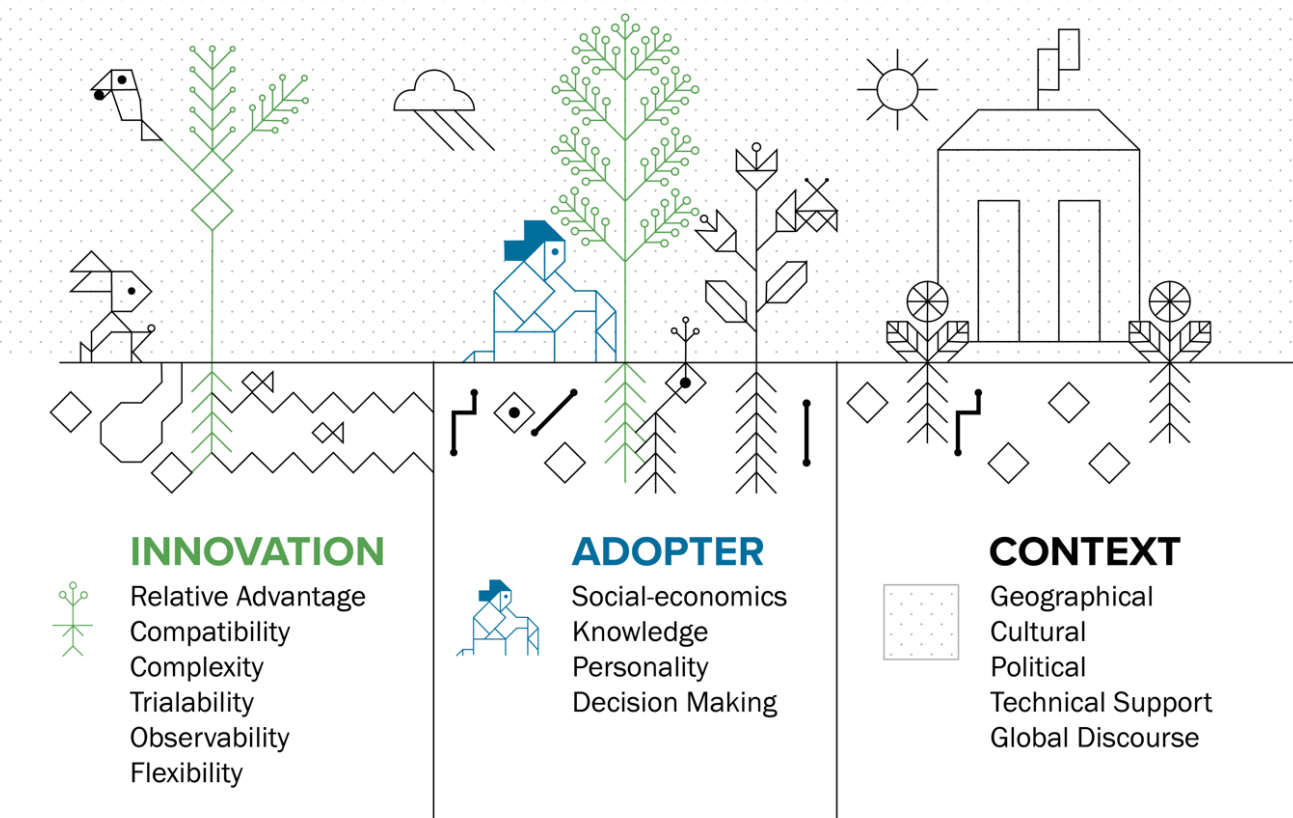
Specifically, this research will address,

- Why people engage in restoration practices?
- How do drivers of restoration vary across socio-ecological contexts?



Left to right: Atlantic forest in Brazil; Golden lion tamarin - an endangered species found in Atlantic forests. Source: <https://unsplash.com/>

### Theoretical framework



Elements in the diffusions' theory. Source: Jagadish et al (2021)

- The Diffusion of Innovations theory<sup>5</sup> identifies linkages between the characteristics of the adopter, the initiative, and the context that helps understand pathways that enable adoption of a certain initiative.
- This is significant in the restoration context where there are multiple stakeholders involved, and it will be helpful to understand adoption patterns over space and time across varied contexts.
- It is also important to study vertical scaling of initiatives<sup>6</sup> - implying the role and participation of various actors across institutional scales in the process, for the sustainability of the initiative.

### Summary of research plan

Research questions	Objectives	Proposed methods
I. What drives restoration practices among landholders in Brazil's Atlantic Forest?	<ul style="list-style-type: none"> <li>Identify enablers and barriers to landholders' engagement</li> <li>Understand perceived and actual impacts of restoration initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Quantitative surveys designed on the diffusions framework</li> <li>Semi-structured interviews</li> </ul>
II. What factors drive the adoption and spread of agroforestry initiatives in India?	<ul style="list-style-type: none"> <li>Discuss if/how can restoration be scaled sustainably</li> </ul>	<ul style="list-style-type: none"> <li>Key informant interviews</li> </ul>
III. What are the patterns of tree planting in India and Brazil over the last decade?	Tree planting patterns such as species planted, type of land targeted, sources of funds, and stakeholder participation	<ul style="list-style-type: none"> <li>Purposive literature review</li> <li>Innovation history</li> </ul>

### Methods

This research uses a qualitative-driven mixed methods approach combining quantitative surveys with open-ended interviews with a range of stakeholders. The case study documentation will make use of surveys and interviews, while the patterns of tree planting and restoration in Brazil and India will be documented through a literature review and innovation history method.

- Literature review involving a purposive review of tree planting patterns in Brazil and India
- Semi-structured interviews with landholders and individual farmers
- Surveys with landholders and individual farmers
- Key informant interviews with government officials, civil society organizations
- Innovation history involving focus groups to trace restoration decisions over a fixed timescale



Smallholder farmer practicing multi-cropping in India. Source: Joglekar (2017)

### Research significance

- Evidence-based policy recommendations for scaling restoration efforts
- Comparative case studies in India and Brazil will enable an understanding of what works in different socio-ecological contexts
- Implications for agroforestry practices in forest fragments and wildlife corridors in Brazil and India

### References

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