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# LAYERS OF DEPENDENCY OF RENEWABLE ENERGY TECHNOLOGIES: THE FOREST BIOMASS CASE

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## Abstract

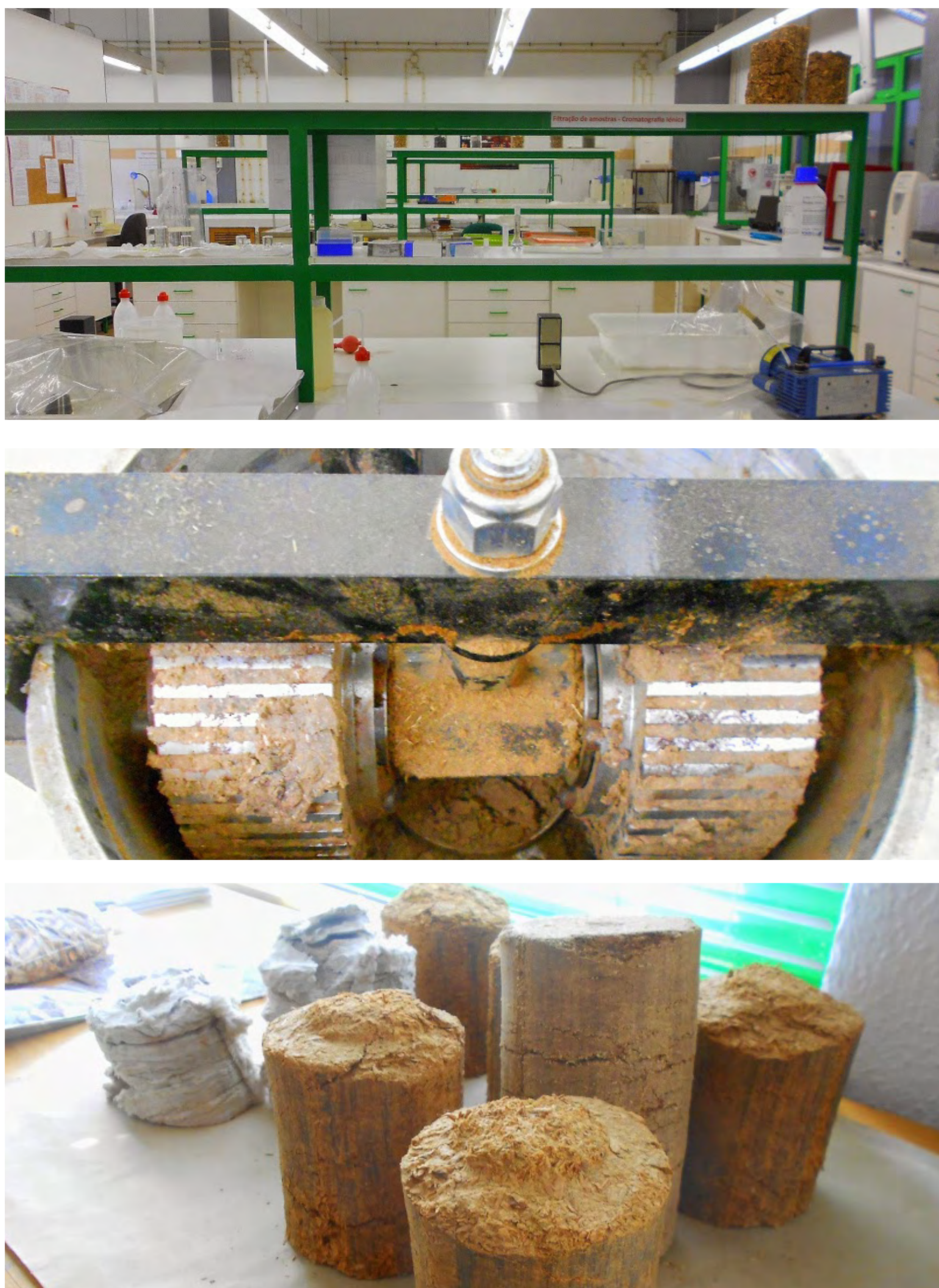
Policy formulation requires a holistic view of dependencies and contextual implications, in addition to technical and expert knowledge.

The work presents the initial methodological frame, incremental by design, for the elicitation of existing dependencies in forest biomass technologies in Portugal. It will progressively be extended to integrate and account for different technologies in different contexts needed for converting renewable resources into energy.

The research follows structured-case

methodology for detection and elicitation of dependencies. Emerging dependencies will form the layers of dependency of renewable energy technologies.

Among other uses, we are aiming at helping public bodies to develop contextual measures and strategies to guide policy formulation and address existing and unforeseen gaps.



## METHODOLOGY

We will use the structured-case methodological framework. It uses permanent iteration between planning, collecting data, analyzing, reflecting and building up knowledge, throughout cycles until we find and understand the dependencies of forest biomass technologies.

The understanding is accumulated throughout the cycles, grounded in data and explicitly documented.

The first cycle of the research will go through the process and operations underlining use of forest biomass to produce energy in Portugal for establishing the first emerging layers of dependencies. After the analysis of the first cycle of data collection, the results will offer the draft model that will be discussed with experts. Feedback received and confronting findings with other research

work will allow to build the conceptual framework for the next cycles.

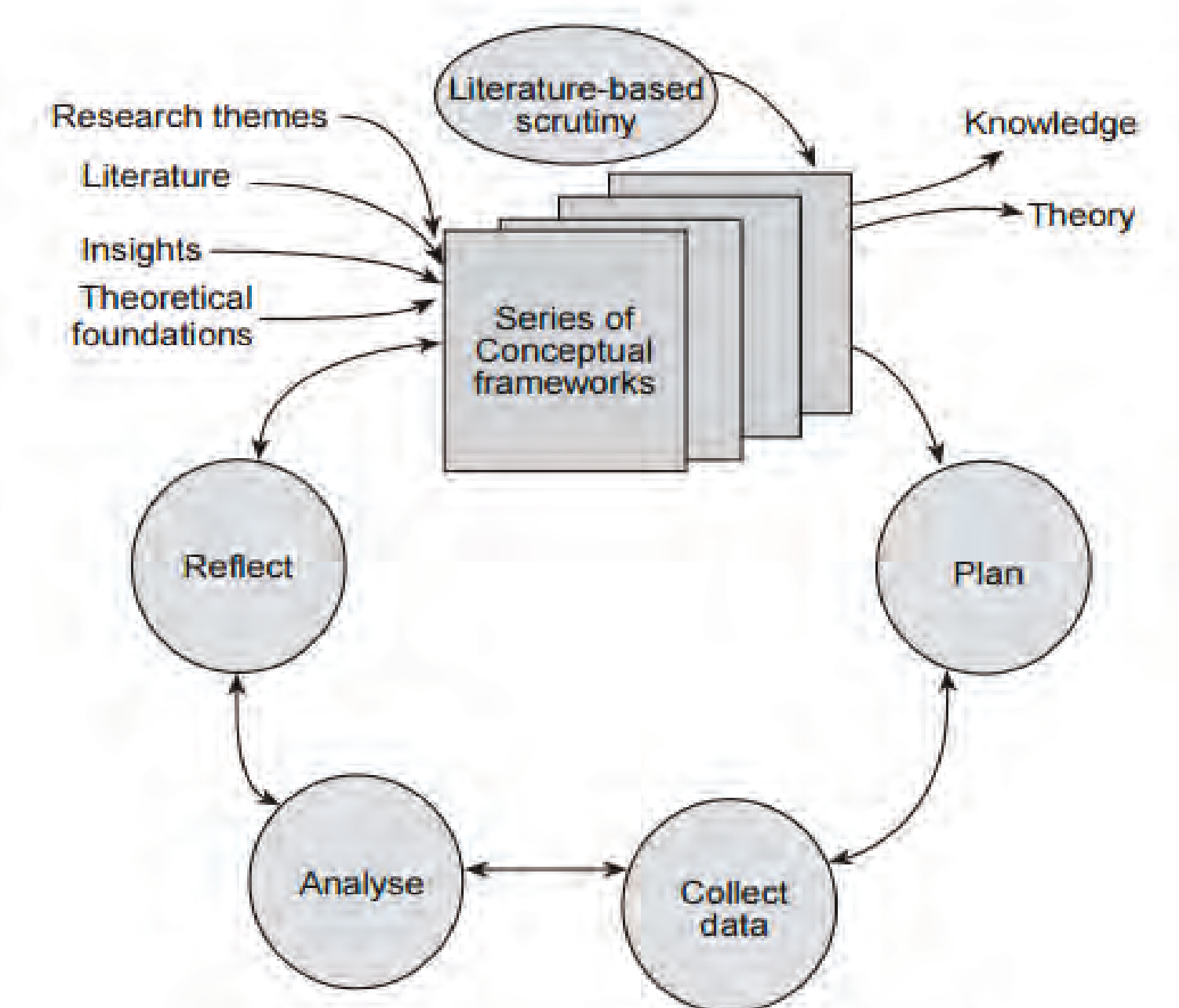
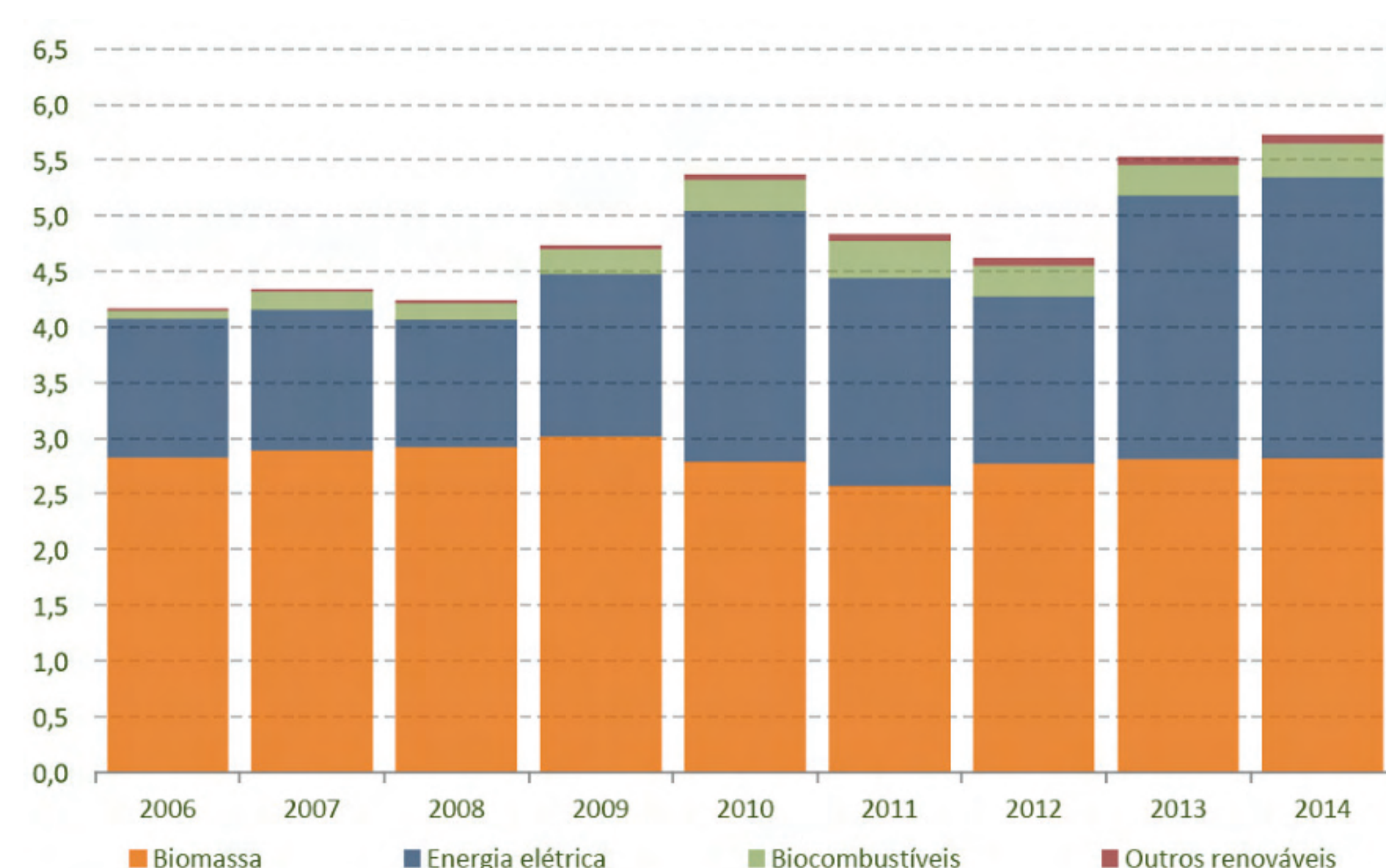


Image of structured-case research method (2000) by JM Carroll and PA Swatman.

## Collecting Data

- visits to biomass plant and biomass laboratory
- in-depth interviews with experts
- recording photos of infrastructures, technologies in use, and resources in context
- reports, legal and regulatory information pertaining to forest biomass
- research about forest biomass processes and operations



## Analysis and Reflection

- coding collected data for dependencies found in all the collected materials, including photographs
- identification of dependencies and inter-relations among them
- group related dependencies in layers

## Prepare next cycle(s)

- first draft of layers of dependency for forest biomass
- check finding with existing research (contradictory and supporting)
- feedback from experts and scientific community
- prepare next cycle