Electricity access and human development in isolated communities of the Amazon region

ROYAL INSTITUTE OF TECHNOLOGY

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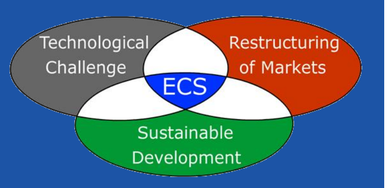
The division of Energy and Climate Studies (ECS) has an interdisciplinary character with a strong systems approach, linking issues related to energy technology and policy, climate change and sustainable development.



At present, ECS works with four defined research themes:

- **Bioenergy systems**
- **Rural electrification**
- **Energy efficiency**
- **Energy and climate policy**

These are some of the central research questions at ECS.

What solutions can be pursued globally and regionally?

Which of them will lead to sustainable development?

What are the solutions that will lead to mitigation and adaptation to climate change while also promoting sustainable development?

www.ecs.kth.se

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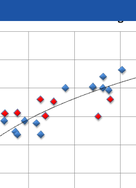

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María F. Gómez has a M.Sc in Sustainable Energy Engineering from KTH (2001). She is a chemical engineer from Universidad de América (1993) with studies and knowledge in energy engineering. She joined the Energy and Climate Studies program in May 2008. Her research focuses on the impacts of different renewable energy solutions in off-grid communities in the Amazon and renewable power implementation policy for the region.

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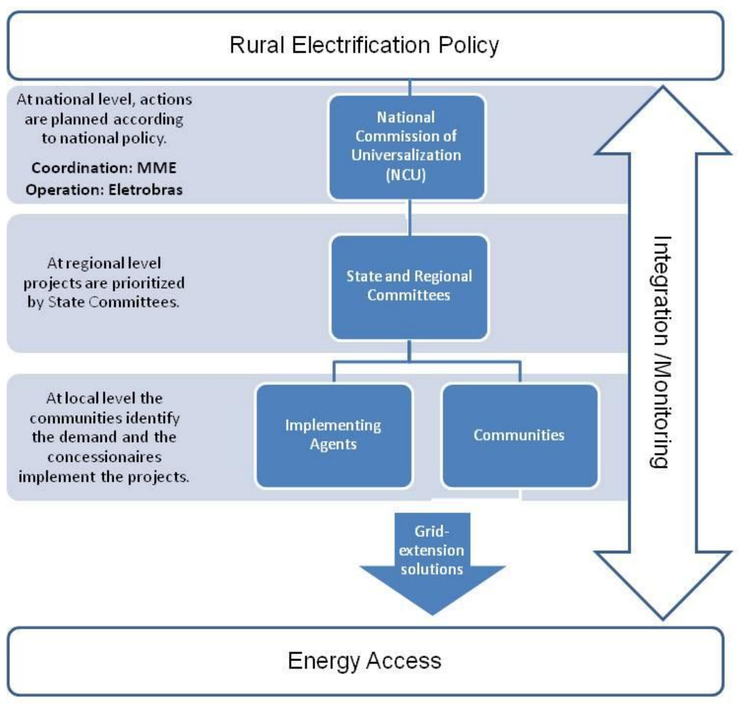
HDI vs residential electricity consumption in the Amazon Region. 2005

More than 14 million Brazilians have benefited from the program Luz Para Todos (LPT – Light for all) since 2003. The grid extension approach is embraced by both government and concessionaires in the efforts to achieve full electricity coverage in Brazil. But remote areas, located far away from the grid, such as significant parts of the Amazon region, cannot be possibly supplied using this approach.

Research questions

- What is the main motivation for rural electrification policy in the Amazon region?
- How is this rural electrification policy connected to development initiatives?
- How are rural electrification projects defined, designed and implemented in Brazil?
- How are the main institutions involved in the process of providing electricity access?
- How are isolated communities in the Amazon region considered under the existent rural electrification policy?

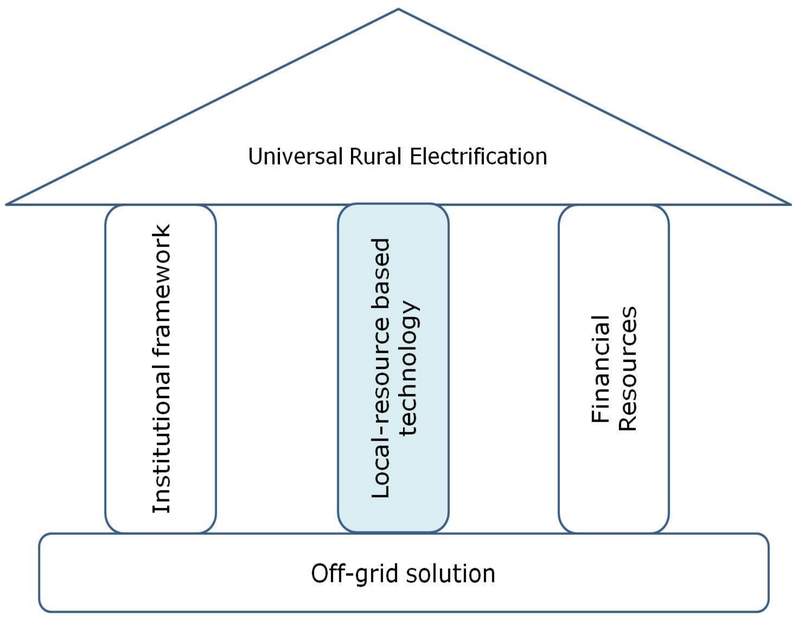
Program Light for all (LPT) Institutional Framework for implementation



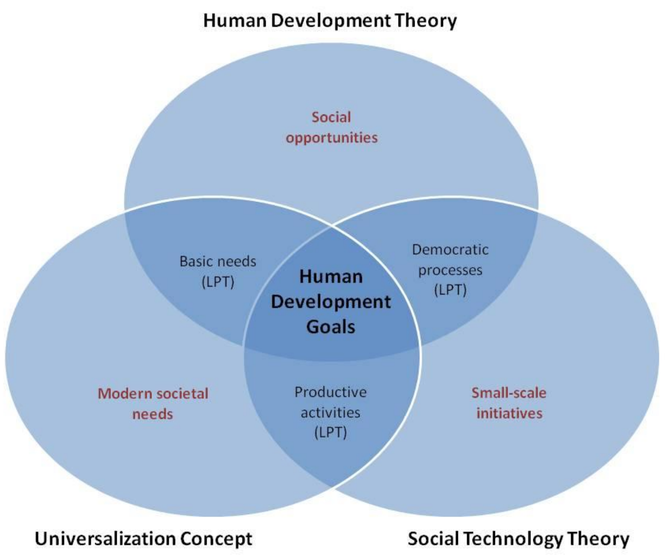
- The government recognizes a strong link between electricity provision and **development**
- There is a strong link of policies to the local citizens based on the definition of electricity as a **citizen right**
- Policies aim at strengthening citizenship, that is, electricity is defined as a citizen right that has the potential to provide **social opportunities**.

Key findings

- The definition of electricity access as a citizen right has enhanced active **participation of communities** in the implementation of rural electrification to cover basic needs.
- There is need for **adapting the existing institutional structures** to appreciate the conditions and specific needs of the isolated communities in the Amazon.
- **Securing financial resources** and using them in a dynamic way to also promote rural development will be central for sustainability of the electrification goals.
- **Harmonization of off-grid technologies with local needs and local resources** is essential for the achievement of universalization in isolated areas.



Future work



LPT needs to consider small-scale alternatives as a driver for universalization in isolated areas. These **small-scale technologies** should be based on local-resources and can enhance not only electricity access but also productive activities to promote **social opportunities**. Small-scale social technologies seem to be a promising option and have the power to create a **new path to development** of the Amazon region. How can these technologies foster social opportunities not only through electricity access but also through the promotion of productive activities?