

# Why does project design & organisation matters for local capability building?

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# IREK

Innovation and Renewable Electrification in Kenya

# Projects and sustainable industrialisation

- Increasing focus on (large scale) electrification infrastructure projects (increase energy access)
- Return to industrial policy and questions of sustainable industrialisation (SDG 9)
- Relevant academic theories:
  - Return of industrial policy – Rodrik et al
  - Rosenstein-Rodan: Large scale projects for industrialisation (big push)
  - Hirschman and mega projects as ‘trait making’ vs small projects as ‘trait taking’ and linkages work
  - Lall: inward looking firms make do vs more innovative export-oriented firms
  - Kaplinsky and inclusive innovation/ sustainable futures



Source: <http://renews.biz/105033/feet-up-for-vestas-in-kenya/>;

# Study focus

## Large and small

- Lake Turkana Wind Project
- Garissa Solar Park
- Kitonyoni solar project
- Mombasa SOS children's village

## Projects

- Design
- Build
- Operate
- Transfer

## Technologies

- Chinese
- Danish
- German
- Kenyan

## Main questions

- Does location in the project matter?
- Have the developed capabilities led to upgrading?

# What did we measure?

## Individual skills

- Government minimum standards
- Additional 'on the job' skills identified
- Training opportunities

## Technological capabilities

- New physical technologies (e.g. new piece of testing equipment) introduced into the firm that results in new business opportunities at any stage in the project cycle
- New knowledge introduced into the firm that results in new business opportunity at any stage in the project cycle (e.g. recruitment of a staff member with EPC experience or training of existing staff in how to install a specific new inverter design)

## Core competences

- Function as an EPC (engineering, procurement and construction) contractor
- Evidence of ability to leverage new partnerships on the back of previous work

## Upgrading

- Process upgrading (e.g. increased efficiency of installation process – speed/ manpower requirement)
- Product upgrading (e.g. from using Chinese to German inverters)
- Functional upgrading (e.g. move from being a contractor to doing full EPC)
- Chain upgrading (e.g. move from installing solar heaters to installing mini-grid systems)

# Major findings

- 1. Local companies benefitted in all projects but only **business 'unusual'** in small scale projects**
  - Kenya develops mini-grid EPC firms in 3 years
  - PM activity in all firms at large scale was 'normal' practice – but huge investment in kit relatively
- 2. **Job creation opportunities** but (a) short term and (b) path dependency towards certain technologies reduces opportunities**
  - Solar PV dominance creates a specific skill set available
  - No need to only employ foreign engineers
  - Construction vs. O&M job opportunities
- 3. Projects do present opportunities for **trait making and scale up** but not at large scale**
  - Functional upgrading has taken place
  - New partnerships and alliances
  - Lock in of local firms involved in large scale projects – little innovation



# Project design and organization: implications

## Project format makes a difference

- EPC vs EPCM for more local contractor involvement
- Not just install and ops

## Local ownership matters

## Needs new set of skills and capabilities

- In early stages of project (D stage)
- Project management skills



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# Take away points

## Not just about energy access

- Projects can build critical base skills for country

## Need a different conceptualisation of innovation

- Provide opportunities for innovation for firms in 'build' stage of large projects
- Learning from linkages (vs learning from importing or exporting)

## Needs continued investment in education and training

- Training in different skill sets (PM)



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