

# System-of-systems infrastructure modelling to support national sustainable development outcomes

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# Motivation

Infrastructure systems provide services that meet essential needs.



# Sustainable Development Goals



- 6 Ensure access to **water** and sanitation for all
- 7 Ensure access to affordable, reliable, sustainable and modern **energy** for all
- 9 Build resilient **infrastructure**, promote sustainable industrialization and foster innovation
- 10 Reduce **inequality** within and among countries
- 13 Take urgent action to combat **climate change** and its impacts



# Our work so far

With UNOPS, we are building case studies and tools for infrastructure assessment, starting in the Palestinian Territories and Curaçao.



# Platform and process

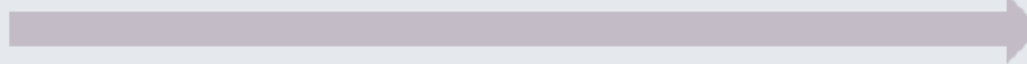
## The National Infrastructure Systems Model for International contexts (NISMOD)

### Visualisation platform

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	

Current SDG-related performance metrics

Evidence based identification of adaptable pathways to sustainable development



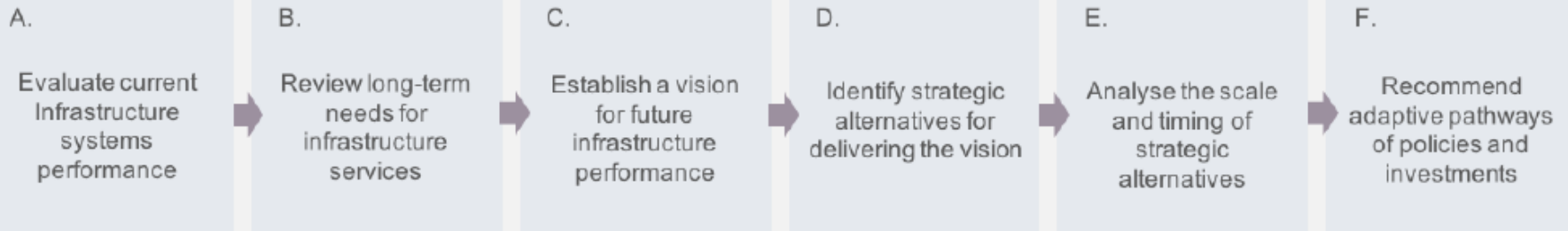
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	

Future SDG-related performance metrics

Iterative testing and development of strategic options



### Assessment process





## NISMOD-INT

NISMOD-International is a process and platform for infrastructure systems planning worldwide.

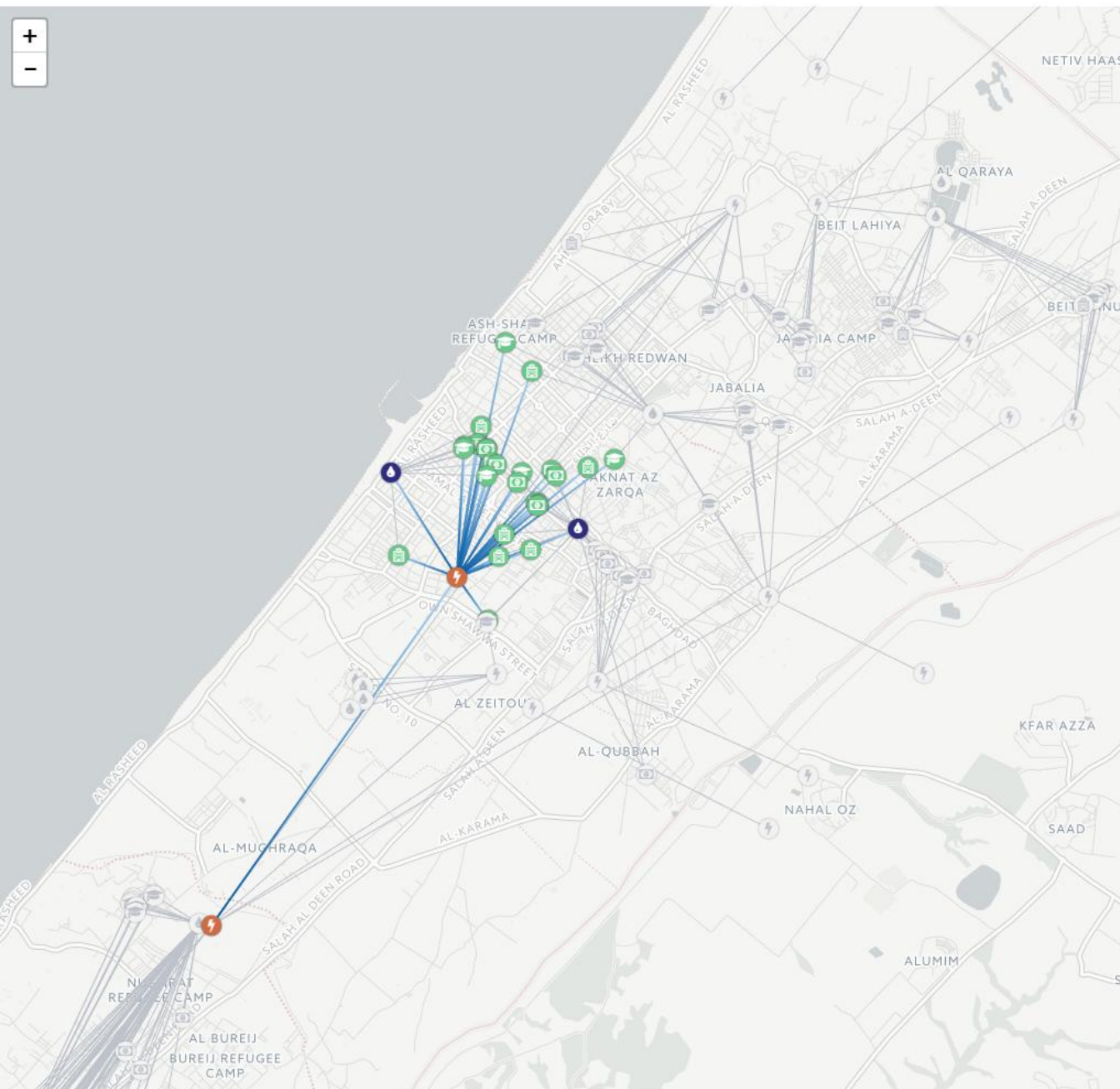
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Sign in



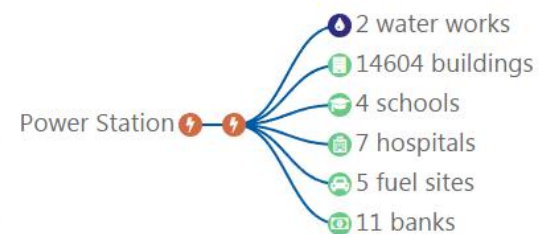
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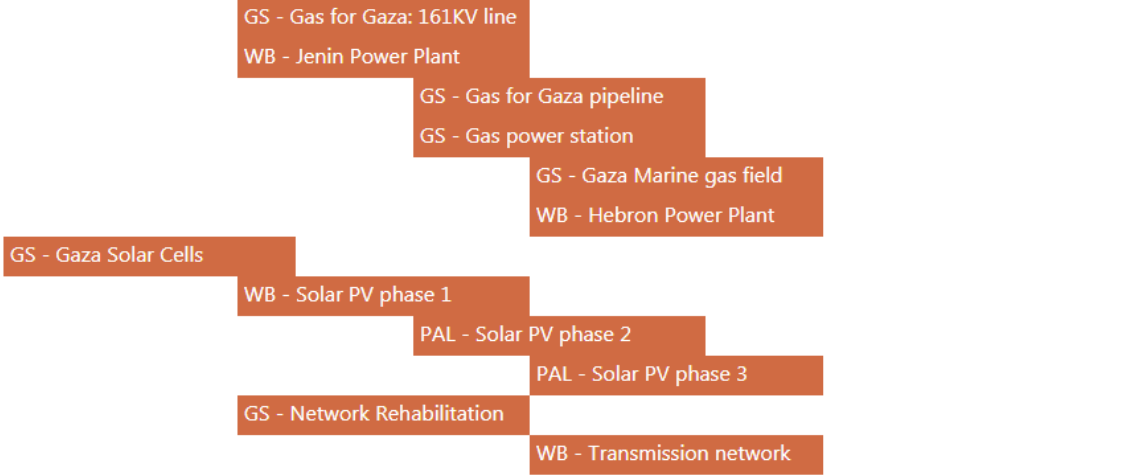


## Infrastructure Interdependencies

The map on the left shows the physical interdependencies that exist between **electricity** assets and other assets within **Gaza**. Clicking on an asset will highlight both its upstream and downstream dependencies on the map.

The network diagram below highlights the explicit upstream and downstream dependencies of the selected **electricity asset** in **Gaza**. The diagram also indicates the number of asset dependencies by sector for the selected asset.

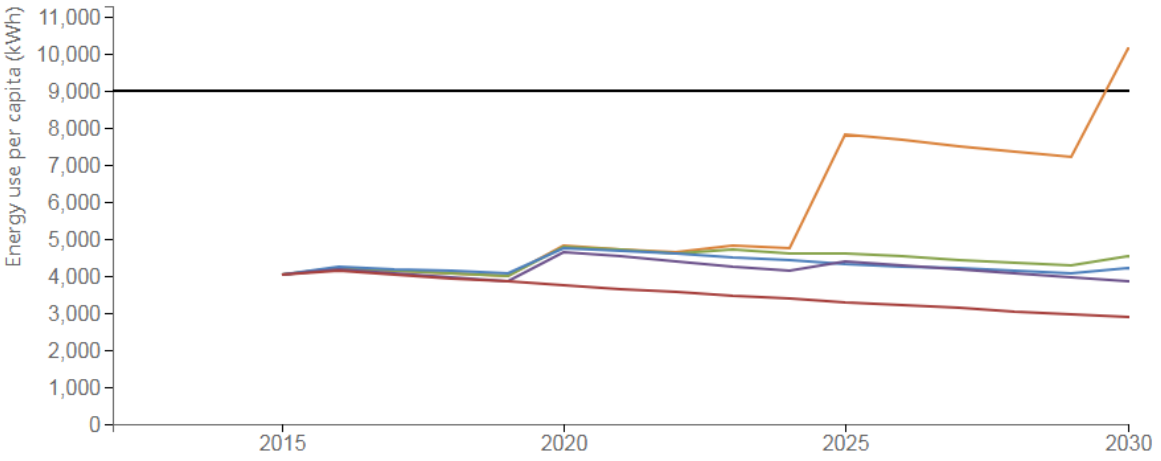




## Infrastructure pipeline

The chart to the left shows the **planned infrastructure investment pipeline** for **Palestine**. Individual projects are shown in the chart, with colour denoting which sector they belong to.

The boxes below highlight the number of large projects that are planned for each sector.



- Vision
- Infrastructure-led development
- Energy with scarcity
- Status quo
- Pipeline
- No-build





Move from a presentation tool,  
supporting communication, towards  
interaction and dialogue.



# Thank you

1. Essential services from infrastructure
2. Case studies
3. Platform design
4. Communication, process, product
5. Any questions?

Tom Russell, Environmental Change Institute, University of Oxford  
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