

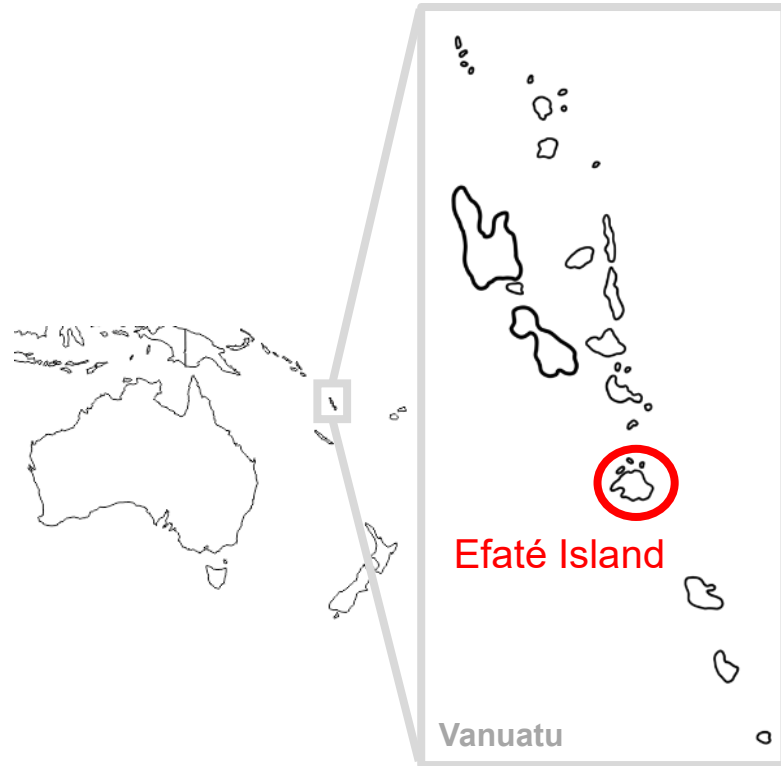
# Restoring electricity and water services post December 17<sup>th</sup> earthquake & lessons learned



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UNELCO  
ENGIE

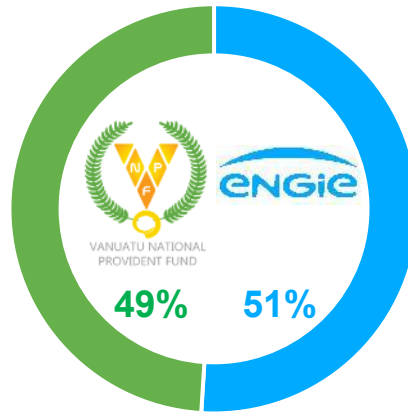


# UNELCO operates 2 concessions contracts on the Island of Efaté in Vanuatu supplying water and electricity...



## Corporate

- **155 staffs** (32% female)
- **433 hours** of training
- **No accident** resulting in time off work



## Electricity

- **12.8 MW** peak demand (avg. 6,6 MW)
- **67 GWh** generation
- **9% RE**
- **626 km** network (HV & LV)
- **301 HV/LV** transformers
- **17 600** customers
- **SAIDI: 7 h 36 min** per customer (incl. natural disasters)

## Water

- **6,8 Mm<sup>3</sup>** production
- **260 km** network
- **12 000 m<sup>3</sup>** storage capacity
- **11** storage tanks
- **69,8 %** network efficiency
- **10 500** customer
- **Tap water is safe to drink**
- **Best Water Utility in the Pacific** by PWPA in 2024 and 2025

# December 17<sup>th</sup> 12:47 Vanuatu time...



**BBC**

## Buildings flattened as 7.3 magnitude earthquake hits Vanuatu

17 December 2024  
Kelly Ng  
BBC News

A photograph showing the aftermath of an earthquake in Port Vila, Vanuatu. A large, multi-story building has been completely flattened, with its debris scattered across the street. A person is standing in the foreground, looking at the wreckage. A play button icon is overlaid on the image, indicating it is a video thumbnail.

Buildings today are flattened in the wake of a 7.3 magnitude Vanuatu earthquake

A 7.3 magnitude earthquake has struck near Vanuatu's capital Port Vila, triggering landslides, crushing cars and flattening multiple buildings, including a complex that is home to a number of Western embassies.

There are unconfirmed reports of deaths but the full extent of the damage remains unclear, as power and mobile networks across the country remain cut off.

**ALJAZEERA**

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## Vanuatu capital

### Tsunami threat has passed for nearby islands after earthquake struck near Vanuatu's capital Port Vila.

A photograph showing a white car that has been crushed under a large pile of debris, including twisted metal and concrete. The scene is the aftermath of an earthquake in Port Vila, Vanuatu. A sign for a 'CURRENCY EXCHANGE' is visible in the background.

on the Facebook account of Michael Thompson on December 17, 2024, shared in the profile of Michael Thompson via (2027)

Port Vila, Vanuatu, causing widespread damage

# A quick view of the damages to Port-Vila ...

- 14 fatalities
- 256 injured



**... instant panic and traffic jams followed the earthquake, there were no more communication network ...**



**... the road to the office has been long and paved with anxiety ...**

# Aftermath of Dec. 17<sup>th</sup> earthquake, the situation by the end of the afternoon...



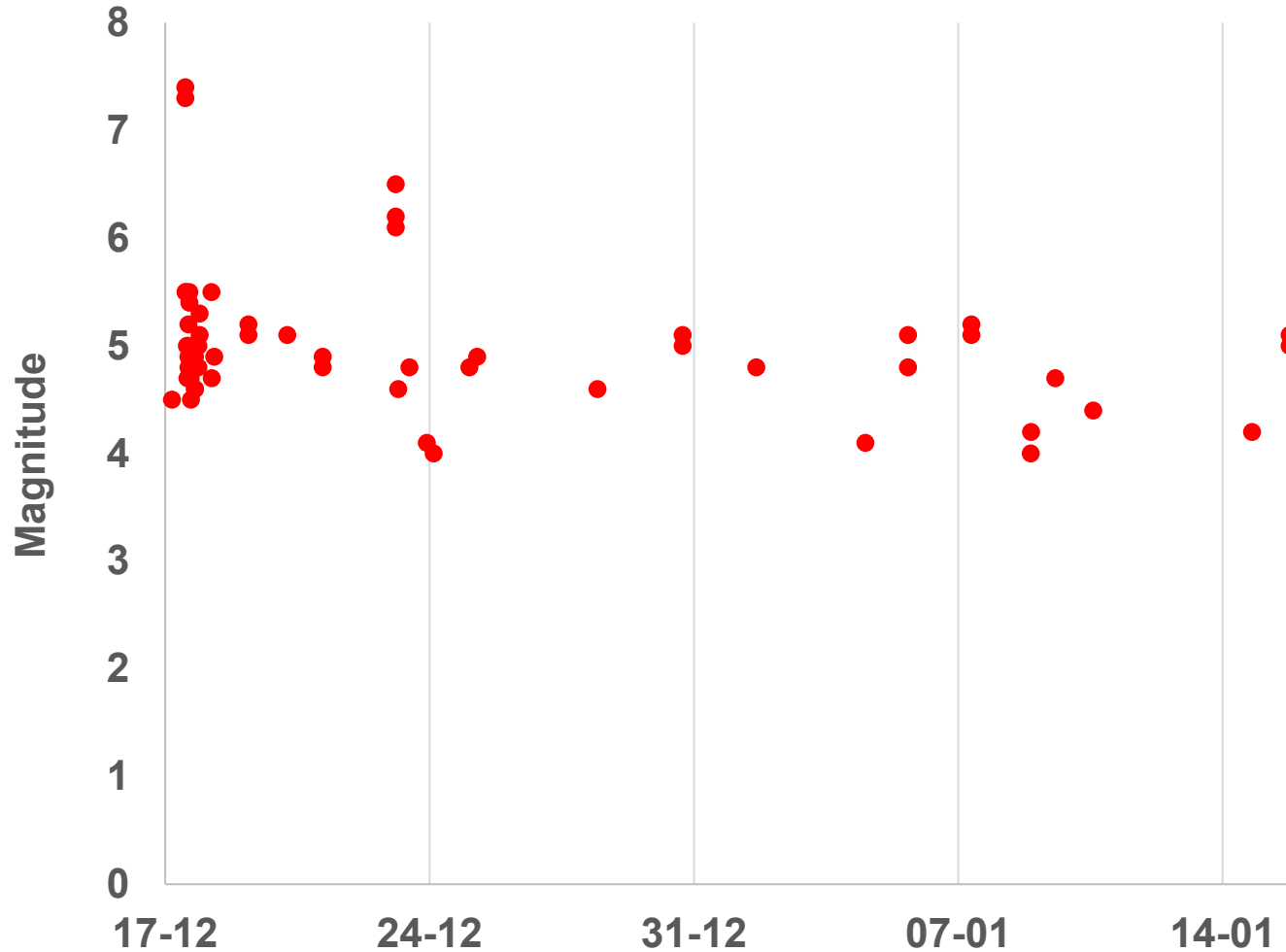
- We had many damages on our **electricity distribution network** (mainly HV transformers and customer connections)
- **4 water storage tanks** (out of 10) are destroyed. But each water storage site remained operational.
- We had & still have **many burst pipes** on our potable water distribution network.
- The main **UNELCO's building** in town is badly affected.
- The road to the **wind farm** is damaged, access is not possible.



- **Port-Vila thermal power station** remained operational.
- **Tagabé thermal power station** is lightly affected. It was back to operation within a few days.
- **Tagabé water pump station** remained operational without any damage.
- **Chlorination system** remained operational without any damage.
- No wind turbine felt down.
- We have only **one staff with a light injury**.

**... UNELCO's crise plan is started**

# ... Every earthquake has its aftershocks...

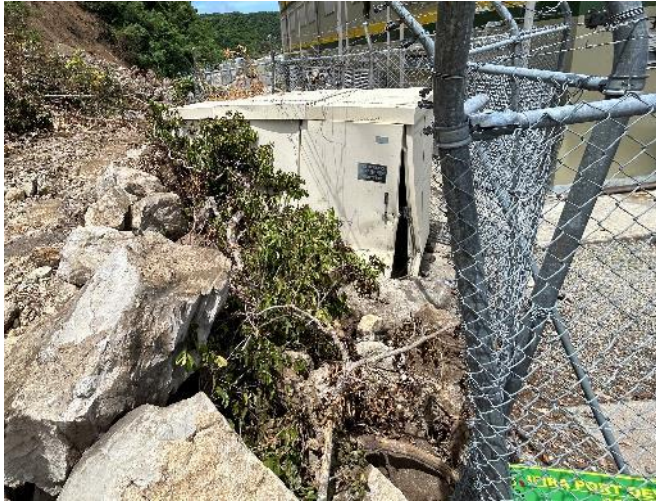


... this was affecting the recovery operations:

- **More damage to weaken infrastructures**
- **Unsafe access to facilities**
- **Constant stress for the population and staff**

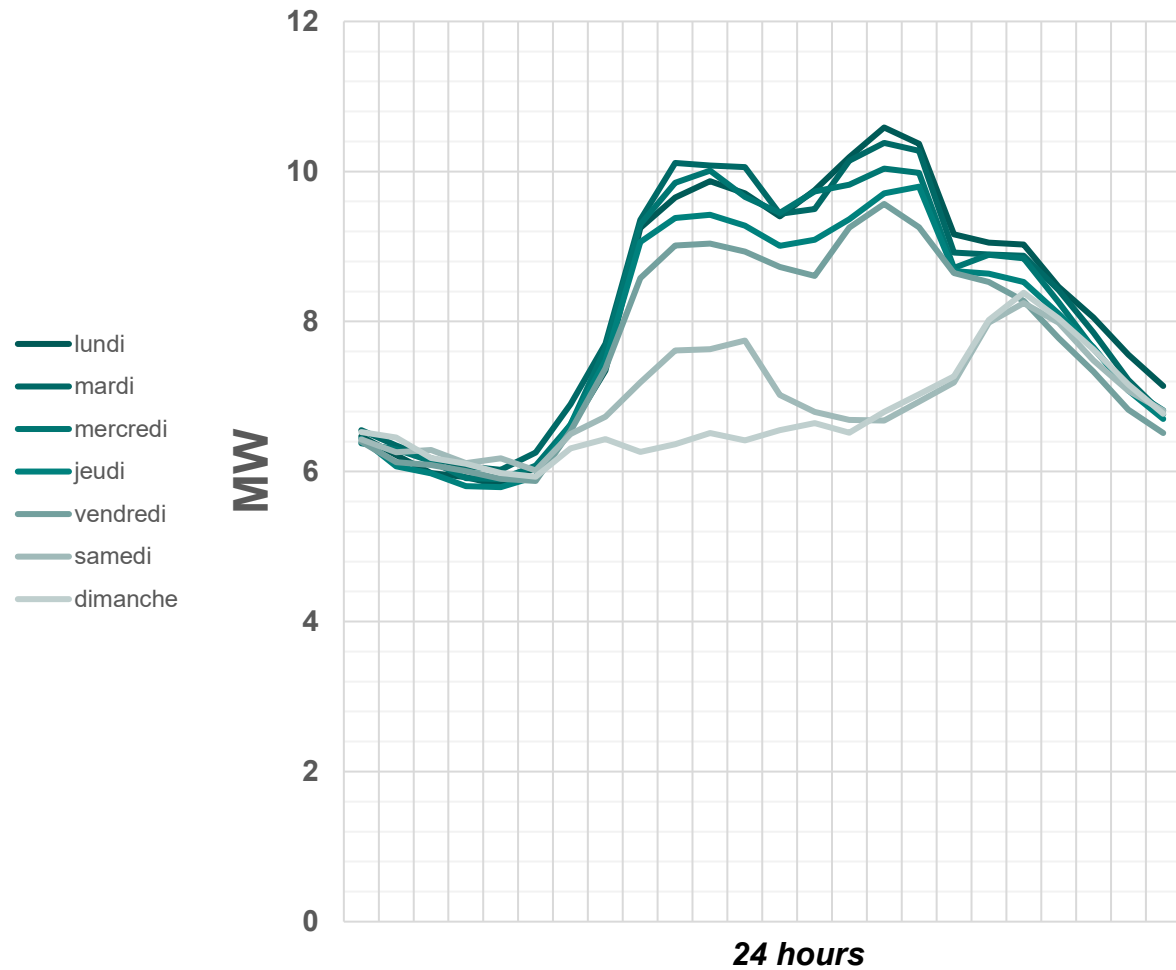
# Damages on our electricity system ...

We have lost 6% of the HV/LV transformers.

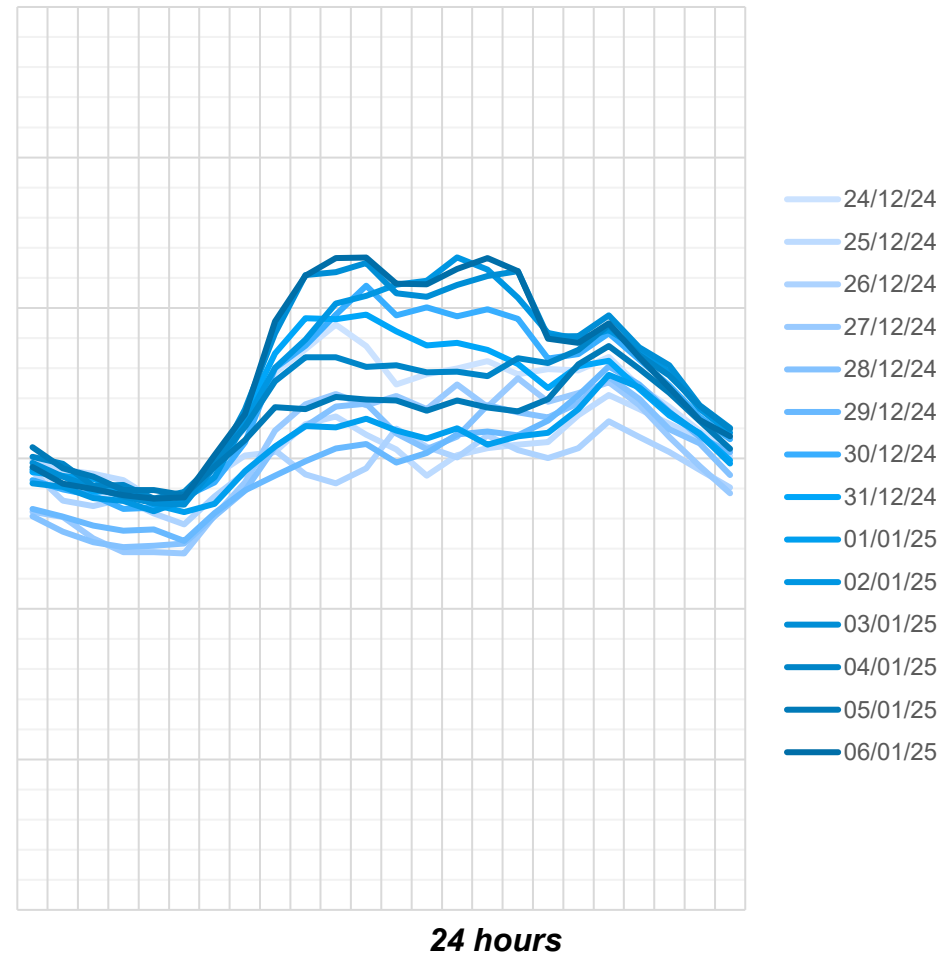


# ... and the impact on power demand ...

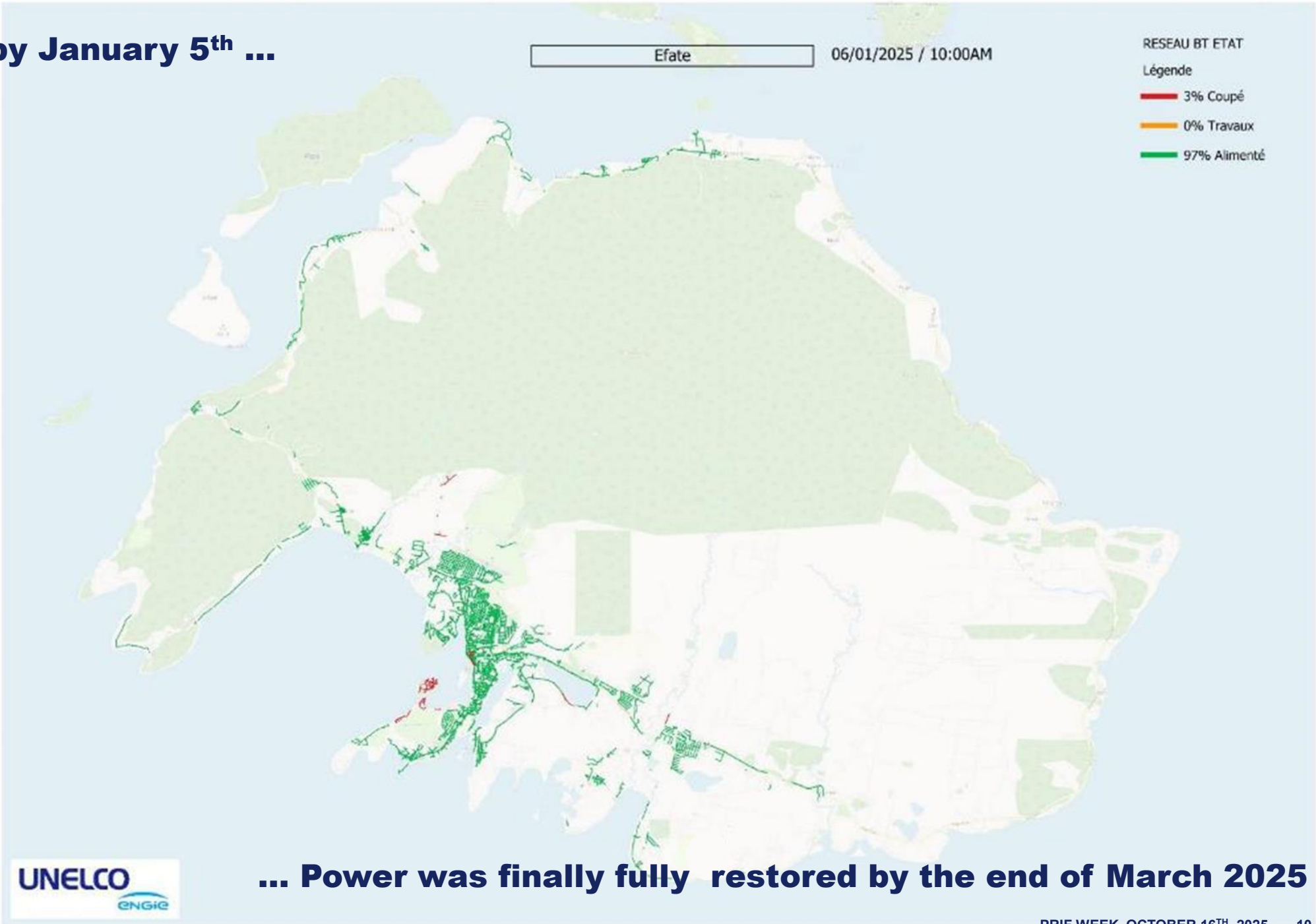
Between Oct. 1<sup>st</sup> and Dec. 16<sup>th</sup>



Since Dec. 24<sup>th</sup>



# Electricity supply by January 5<sup>th</sup> ...



# UNELCO's Water supply



## Perchoir

## Facio

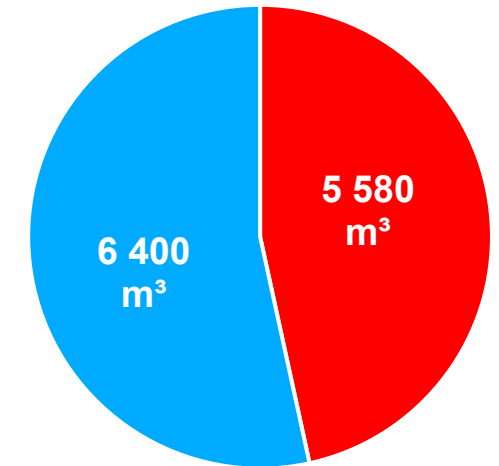
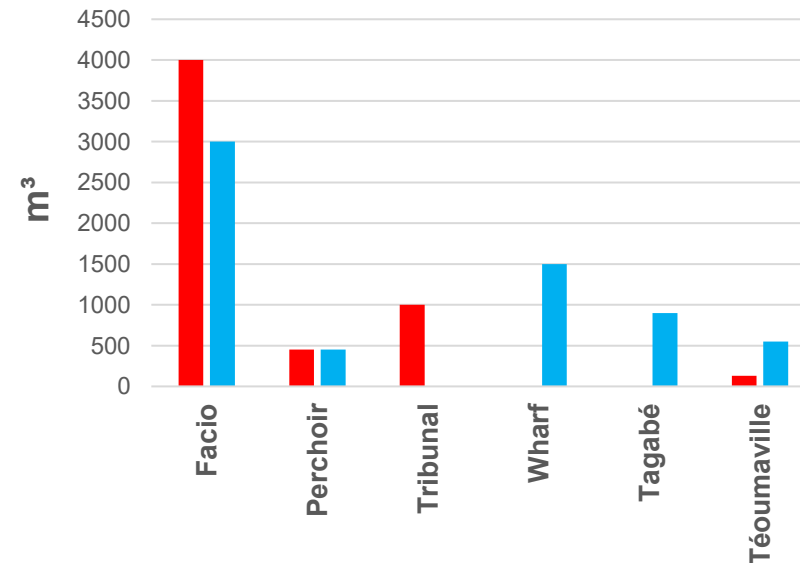
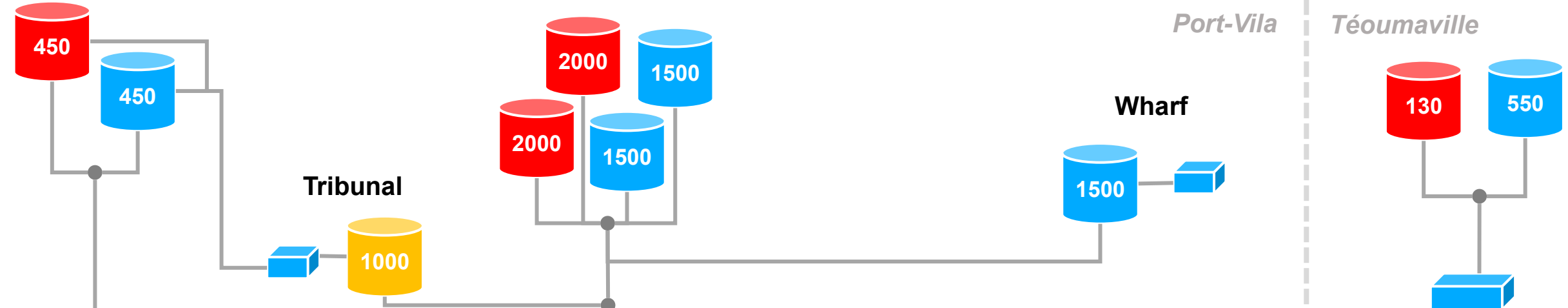
## Port-Vila

## Téoumaville

## Wharf

## Tribunal

## Tagabé pump station



# Damage to storage tanks...

... all the tanks were full at that time...

**Timber Tank**



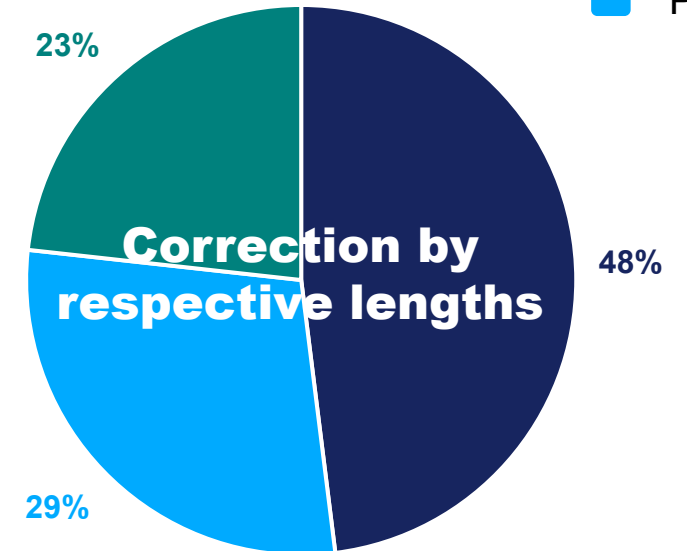
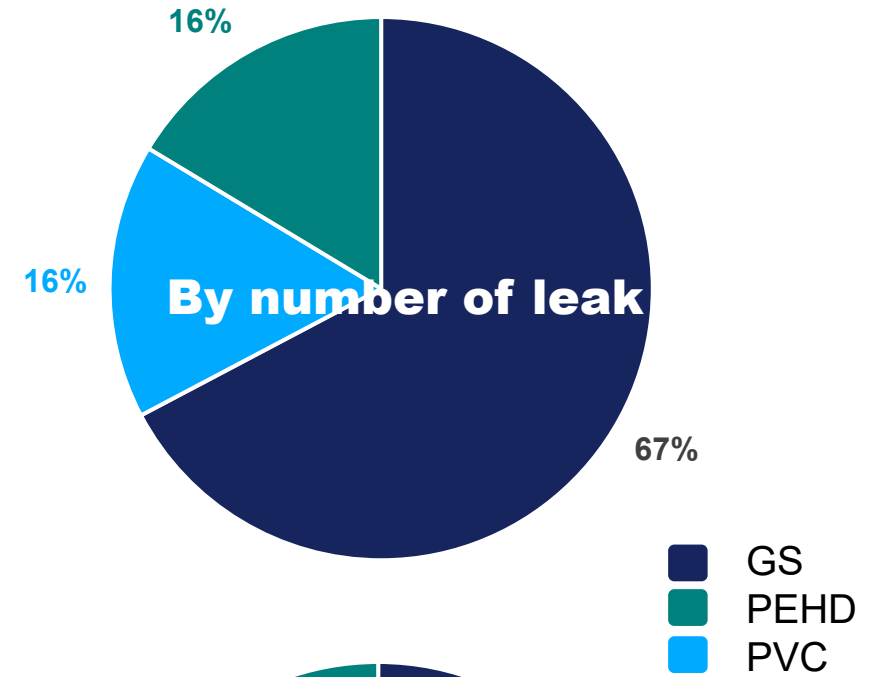
**Steel structure with liner**



**Bolted steel**



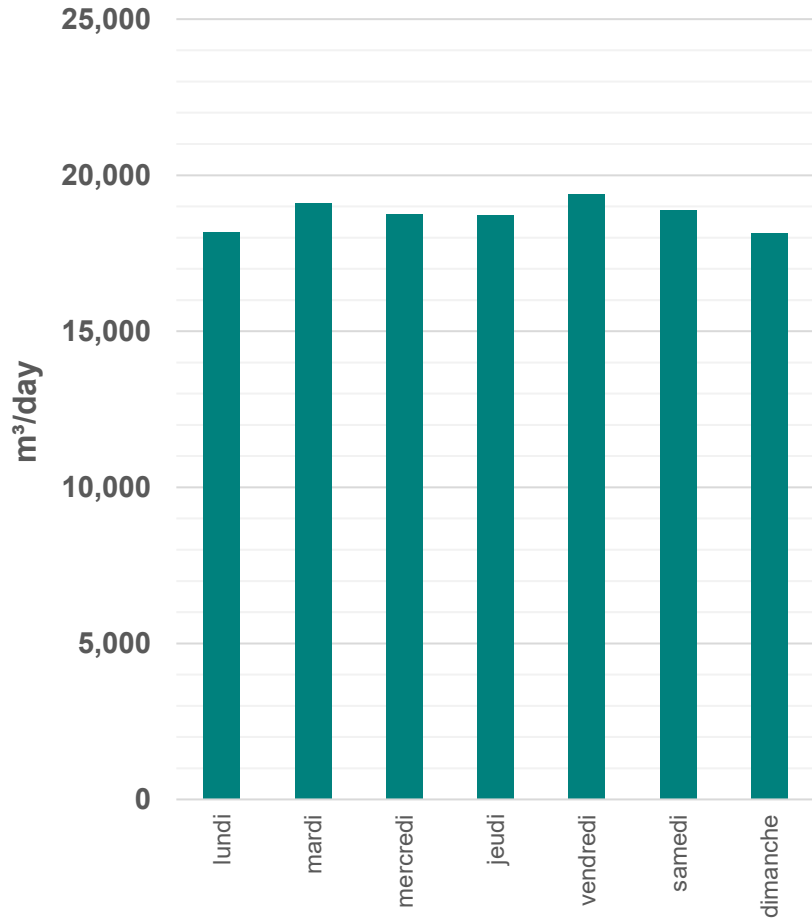
# Damages to the network...



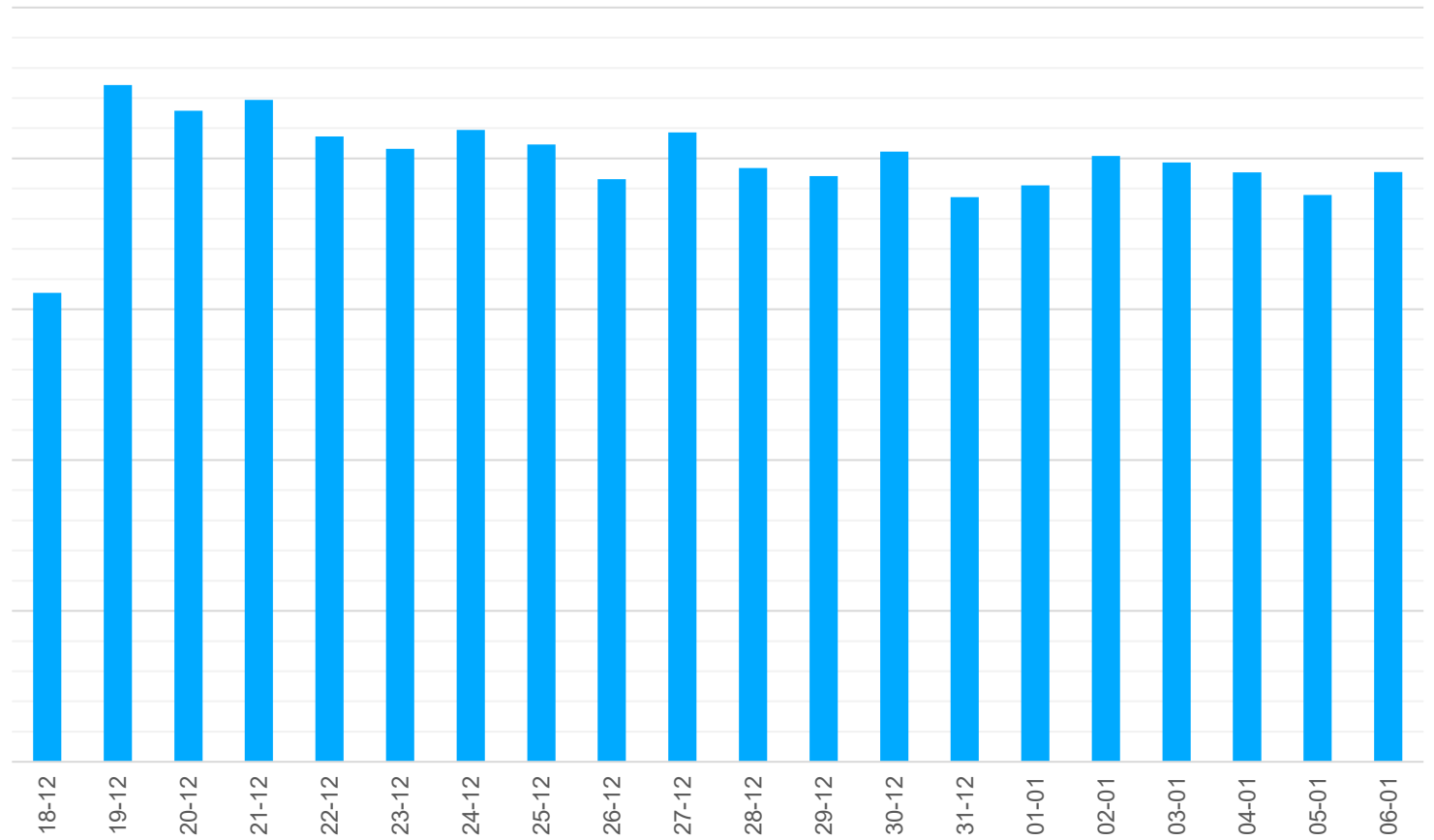
➤ **79 major leaks** repaired in 15 days

# Water production

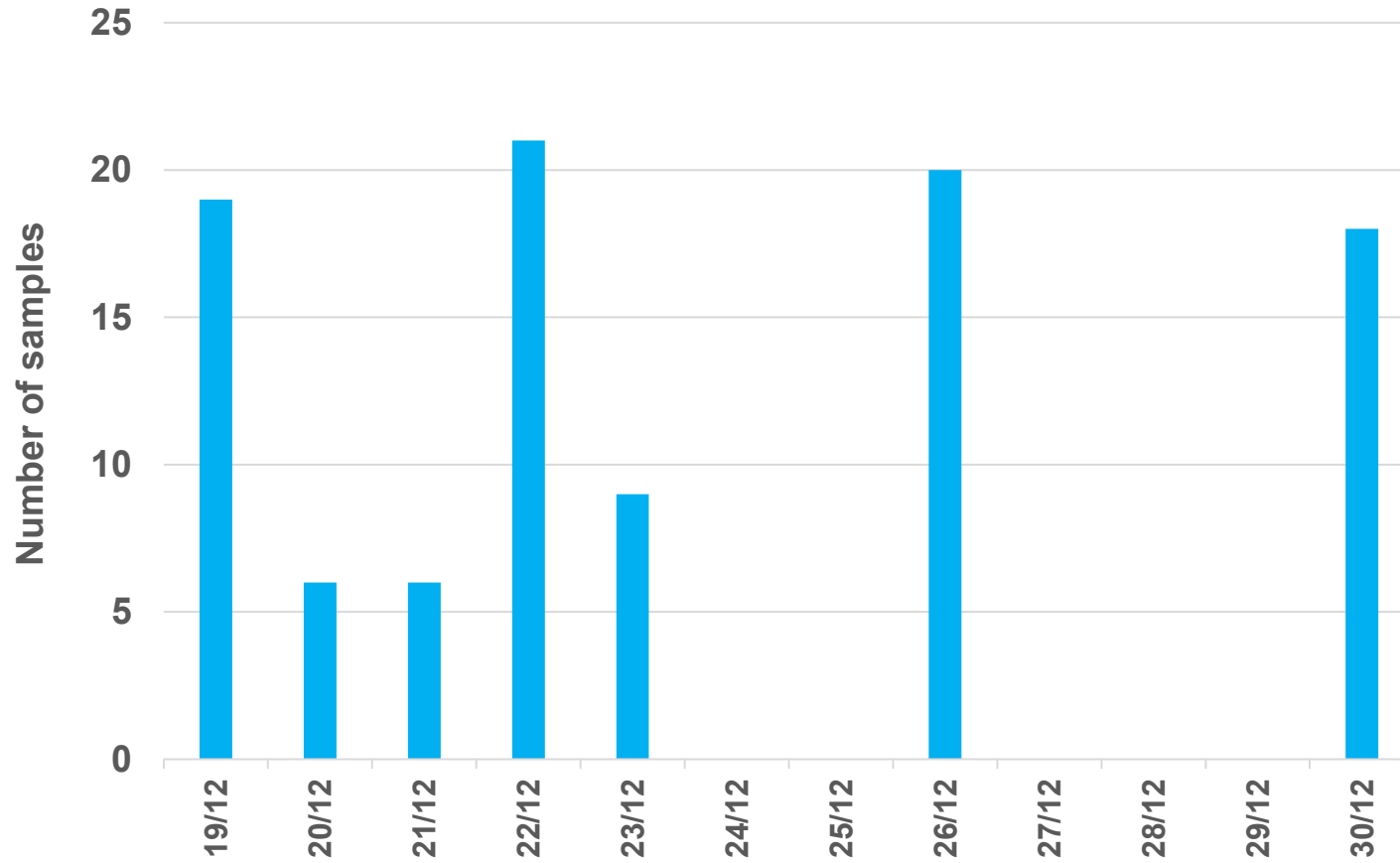
Dec. 1<sup>st</sup> - 16<sup>th</sup>



Since Dec. 18<sup>th</sup>

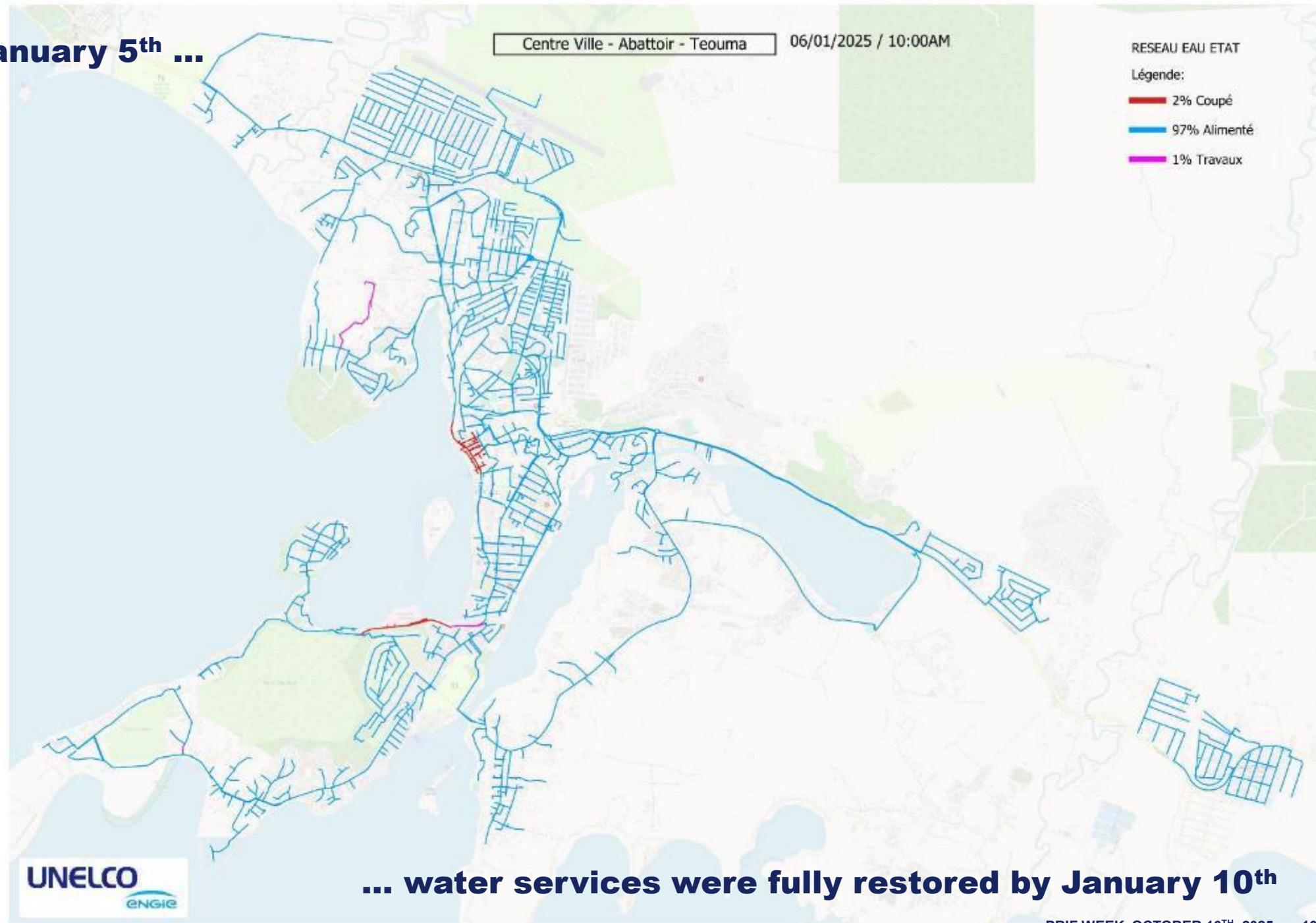


# Water quality

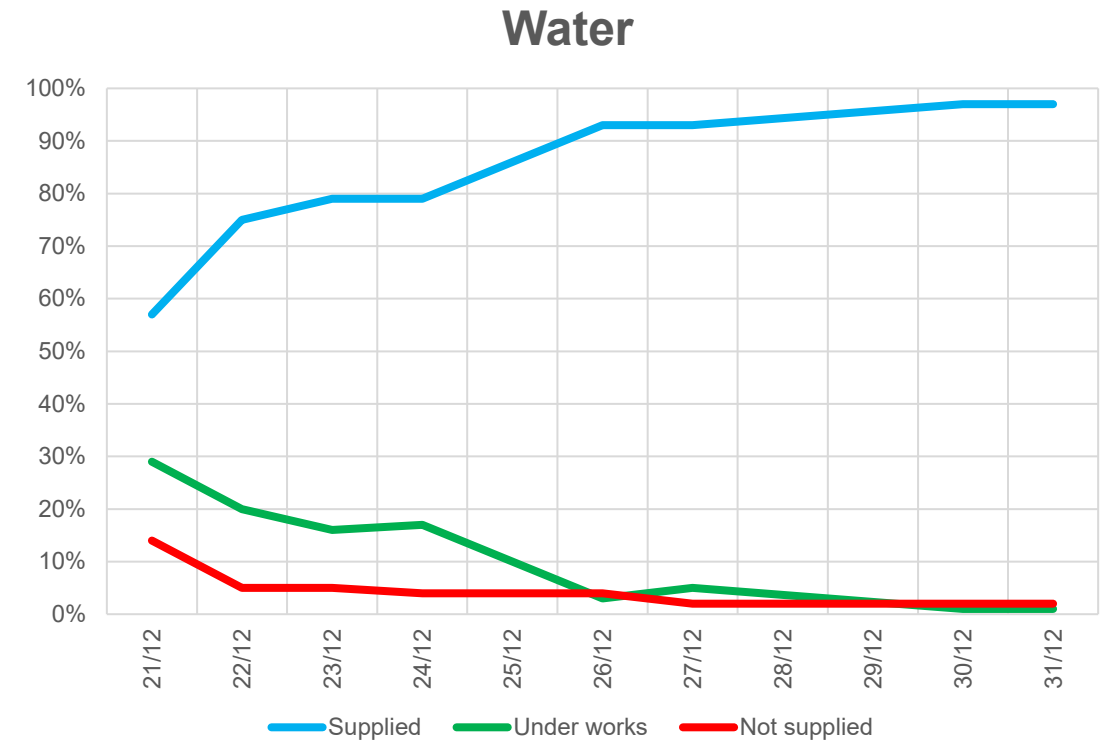
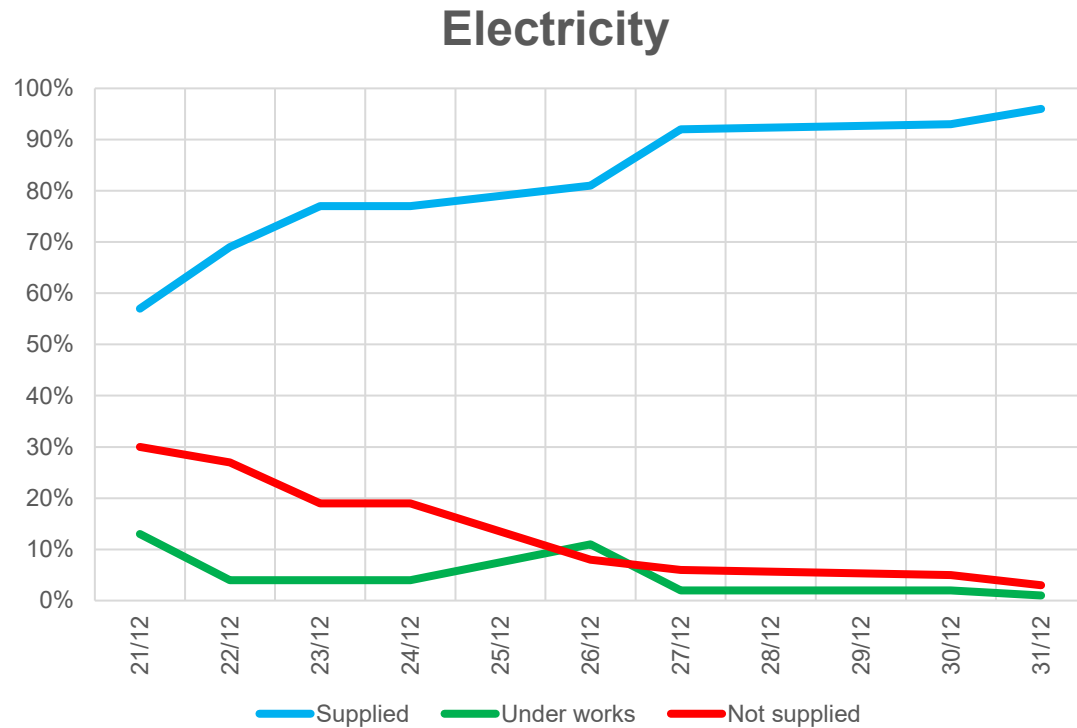


- **Water treatment remained operational throughout the crisis**
- **99 samples taken**
- **0 nonconformity**

# Water supply by January 5<sup>th</sup> ...



# A quick view on the restoration of both electricity and water services



- Thanks to the **mobilization of all UNELCO's staff and UNELCO's methods, organisation and technical expertise.**
- **Daily update** of the progress **delivered at NDMO**

## More generally, and for the whole operation...

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- **A psychological support unit has been set up and made available to all staff.**
- **All IT systems remains operational throughout the period.**
- **We have opened a new customer agency at Tagabé with a special attention to prepaid customer.**
- **All the support departments have been relocated to Tagabé.**

## Lessons learned from this event (1/2) ...

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- **Make the most of the data recording (SCADA, smart meters).**
- **Update your design specifications.**
- **Review our contingency & emergency plans.**
- **Re-organize your team for a long and fastidious recovery.**
- **Prepare for using only your own telecommunication network (Starlink, radio ...).**
- **Have a perfect knowledge of the behaviour of your networks, of the demand and the potential alternatives.**

## Lessons learned from this event (2/2) ...

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- **Organize for a daily communication to the Authorities and the Public.**
- **Attend all official recovery meetings with Authorities to avoid poor decisions making that could worsen the situation.**

**... and always prepare yourself for the worst, you will never be deceived !**

# Tank yu tumas



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