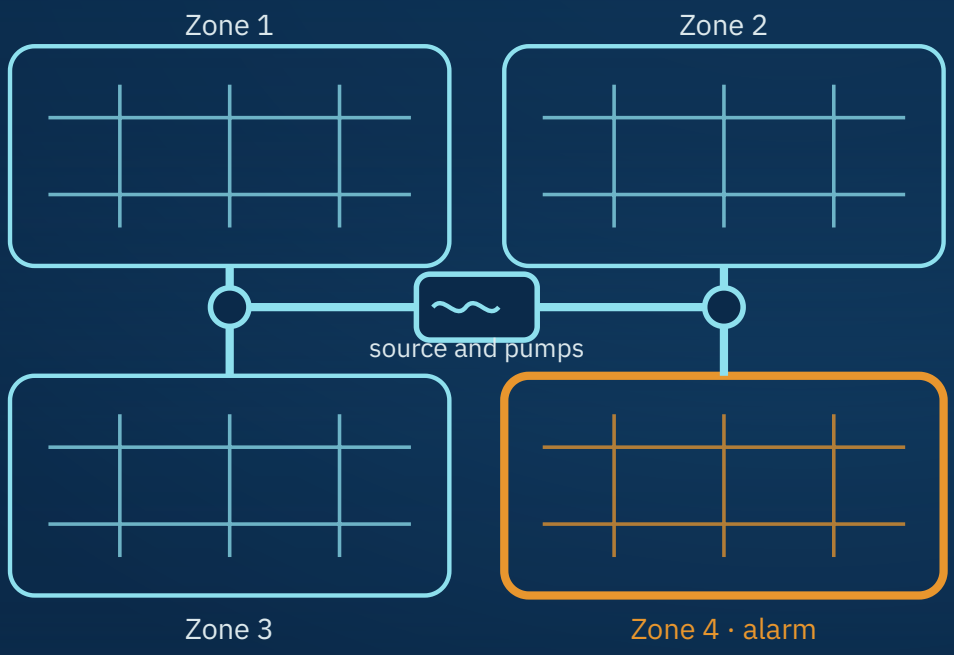
WATER LOSS, PUMPS, METERS AND PIPES FOR WATER UTILITIES

Find the water you are losing.

CARI-Pani reads the records your network already keeps and tells you which zone is losing water, which pump is wasting power, which meter is wrong and which pipe to replace first.



BUILT FOR: WATER UTILITIES, MUNICIPAL NETWORKS AND SUPPLY MANAGERS.

Zone water loss
ranked, with what to check

Pumps
power wasted, early stops

Tanks
fill by fill, supply hours

Meters
listed for a visit

Pipes
in replacement order

Water quality
the water or the sensor

THE WATER MANAGER'S DAY

Six problems you know. One report.

The same questions come up in every water network. Water goes in, less reaches the taps, and the records that could say where are spread across loggers, meters, pump logs and log sheets. CARI-Pani reads them together.

Water lost in zones

Zones ranked by new water lost, with the likely cause and what to check first; then, whether the repair worked.

Bursts on big mains

A plain alarm for a sudden, lasting rise in flow on a main, with what to check.

Pumps wasting power

Pumps that stop early, run long or restart too soon; the pump giving less water; the electricity it wastes.

Tanks and reservoirs

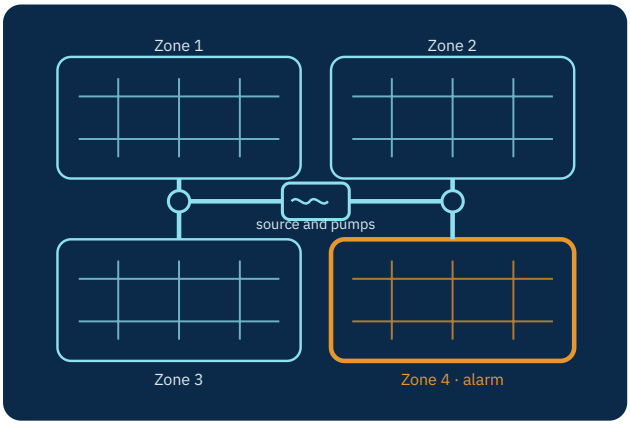
Water missing from a reservoir or tank, fill by fill; when supply came and for how long.

Water quality

Breaches of IS 10500 or your own limits, and "the water changed" told apart from "the sensor is wrong".

Meters and old pipes

Meters listed for a visit, unrecorded water found by area, pipes in replacement order with a yearly plan.



WHAT THE NETWORK TEAM NEEDS TO KNOW

Which zone, which pump, which meter, which pipe, and what to check first.

Your records hold every logged hour. CARI-Pani reads them and puts the answer in plain words your team can act on.

No new sensors. No digging. Start from the records you already keep.

HOW IT WORKS

Your records in. Your report out.

Send control-room exports, logger files or typed log sheets. Any column names work; we map them with you. Each check runs on the readings you send, and the report tells you which ones it used.

YOU SEND

- **Inflow to each zone; pressure at its far point if you have it**
- **Reservoir and tank levels, inflow and outflow**
- **Pump run state, power and flow, or the pump log**
- **Customer and bulk meter totals**
- **Pipe list: year, material, length, breaks**
- **Water quality readings** from analysers or the lab
- **Your network model file and listening-logger levels** if you have them

→

YOU GET

- **Zone losses ranked, and a check that each repair worked**
- **Burst alarms on mains**
- **Pump checks, with energy waste and its cost at your tariff, and the CO_2**
- **Reservoir and tank balance, supply hours by ward**
- **Meters to visit and quality alerts**
- **Pipes in replacement order, with a yearly plan**
- **Reports in English, Hindi, Marathi and Gujarati**

1

Send your records

Exports from any logger, meter or control room, or typed log sheets, one reading per row.

2

Your report lists what was checked

The assets checked and the readings used.

3

A ranked report, in your language

The problem that matters most at the top, with what to check first.

What each record unlocks

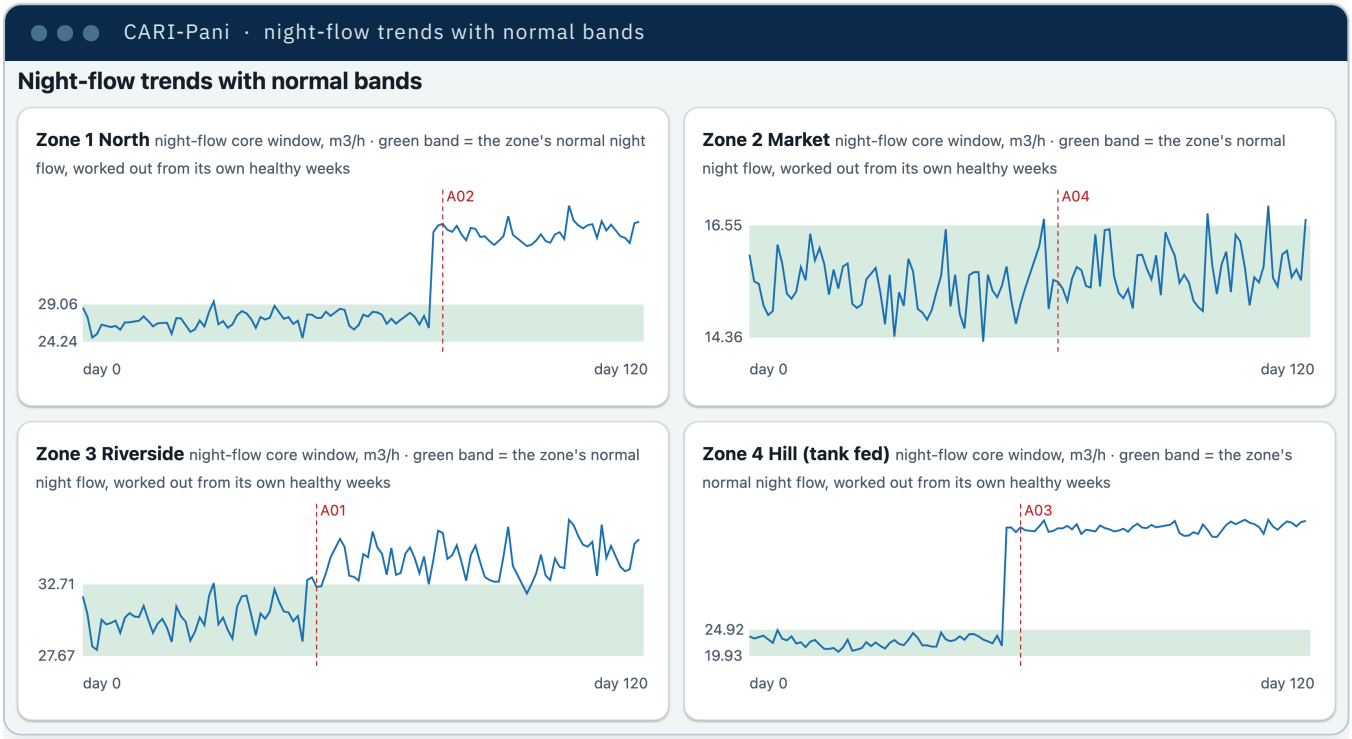
YOU SEND	IT UNLOCKS
Zone inflow; pressure at the far point	Zone losses and the repair check; stronger reasons for a loss
Tank level, inflow and outflow	Reservoir and tank checks; supply hours
Pump run state, power, flow	Pump checks and the electricity wasted
Customer and bulk meter totals	Meters to visit; unrecorded water by area
Pipe list with breaks	Pipes in replacement order; the yearly plan
Water quality readings	Quality alerts

Typed log sheets work. Send exports or typed tables for the assets you want checked; the report names the readings it used.

LOSSES AND BURSTS

Find the zone losing water.

Zones ranked by new water lost, each with the likely cause and what to check first. Then, once your crew has repaired the leak, the repair check shows whether the zone is back inside its usual range.



The night-flow page: each zone with its usual range shaded. The alarm is marked on the day it was raised.

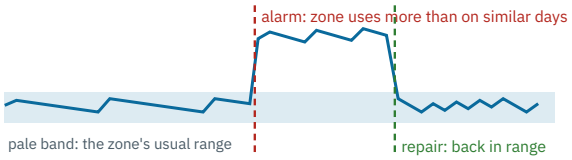
ZONE WATER LOSS AND NIGHT FLOW

What goes in: inflow to each zone; pressure at the zone's far point helps.
What you get: zones ranked by new water lost, the likely causes, what to check first, and whether the repair worked.

BURSTS ON BIG MAINS

What goes in: main flow; pressure if you have it.
What you get: a plain alarm for a sudden, lasting rise in flow on a main, with what to check.

From alarm to repair



Drawn example. The alarm names the zone and what to check first. Your crew finds and mends the leak. The repair check then shows the zone back inside its usual range.

ALSO IN THIS AREA

- Zones with an unusual rise in use, listed for a check
- Listening-logger levels: the loggers worth a visit and an area for the leak
- The best places for pressure loggers

PUMPS, RESERVOIRS AND TANKS

Pumps that waste power, tanks that lose water.

From the pump logs, power readings and tank levels you already keep.

PUMPS

Pumps that stop early, run long or restart too soon. The pump giving less water for the same electricity. The electricity it wastes, with its cost at your tariff and the CO_2.

RESERVOIRS AND TANKS

Water missing from a reservoir or tank, fill by fill. When supply came and for how long, zone by zone or ward by ward. Water left standing too long in a tank.

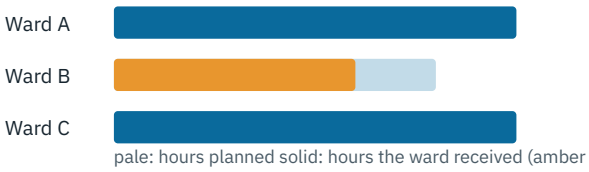
Pump run pattern



top: a steady run; below: a pump that stops early and restarts too soon (amber: runni

A steady run beside a pump that stops early and restarts too soon.

Supply hours by ward



pale: hours planned solid: hours the ward received (amber

The hours of water each ward really got, against the hours planned.

Sample alarms

PUMP STATION

P2 **Pump P-2: restarts too soon**

After the duty pump stops. Check first: duty-pump trips.

RESERVOIR

P2 **Reservoir R-2: supply hours short**

Ward 14 received water for 3 hours against 4 planned.

Illustrative sample. Zone and unit names are examples.

CHECK	WHAT GOES IN	WHAT YOU GET
Pump run patterns	Pump run state over weeks, or the pump log	Pumps that stop early, run long or restart too soon
Pump energy	Pump power, flow and run state	The pump giving less water, extra pipe resistance, the electricity you could save
Pump cost and CO_2	Network file, pump hours, your tariff and grid factor	Energy per pump, with its cost and its CO_2
Reservoir and tank balance	Level, inflow and outflow	Water missing, fill by fill; water left standing too long
Supply hours	Inlet flow or tank level with time	When supply came and for how long, by ward

Built for supply a few hours a day. Supply hours by ward, tank balance fill by fill and tanker plans.

WATER QUALITY AND METERS

Is it the water, the sensor, or the meter?

Quality readings checked against drinking-water limits, real changes told apart from failing sensors, and meters listed for a visit.

WATER QUALITY

Breaches of IS 10500 or your own limits. "The water changed" is told apart from "the sensor is wrong", so your team checks the right thing first.

WHAT GOES IN

- Quality readings with time
- An analyser export, or a lab or hand-test table
- For chlorine along the network: your network model file

METERS

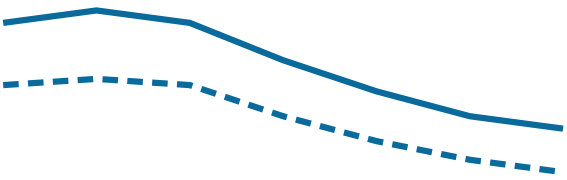
Meters stopped, stuck, jumped or running backwards, set to the wrong unit or with a wrong clock. Listed for a visit, with how to check them. Water not recorded in an area.

WHAT GOES IN

- Customer or bulk meter totals with time
- Months of readings

Two ways a reading can drop

"Water quality changed"



"Sensor problem, not the water"



Quality readings in; a water-change alert or a sensor-check notice out.

Sample alarm

P3 **Meter M-14: running backwards**
Check first: how it is fitted.

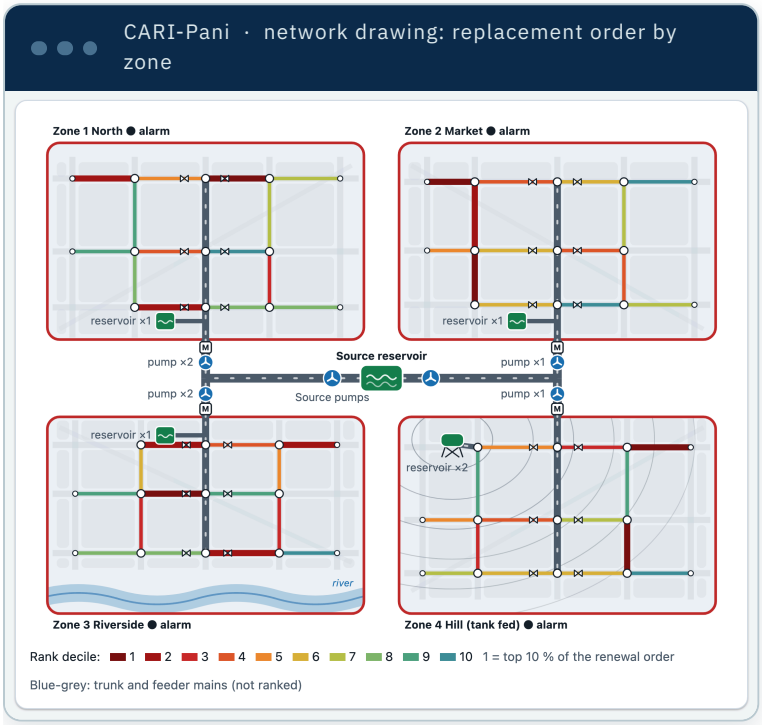
Illustrative sample. Unit names are examples.

Check the right thing first. When an analyser or a meter is the problem, the report says so, so your team goes to the instrument first.

PIPES AND PLANNING

Which pipe first?
A yearly plan to match.

Pipes put in replacement order from your own break records, shown on your network drawing, with a yearly plan within your budget.



Colour shows each pipe's place in the replacement order, from the top tenth down.

WHAT GOES IN

- Pipe list: year laid, material, length, breaks
- Your budget and rates, for the yearly plan

WHAT YOU GET

- Pipes in replacement order
- A year-by-year plan within budget
- Expected breaks for groups of pipes
- An inspection list

On real pipe records

Our list		**about half**
By pipe material alone		**about a third**

Over ten years, about half of a city's main breaks fell in the top tenth of our pipe replacement list; a list by pipe material alone caught about a third.

PLAN SUPPLY BEFORE YOU DIG OR SWITCH

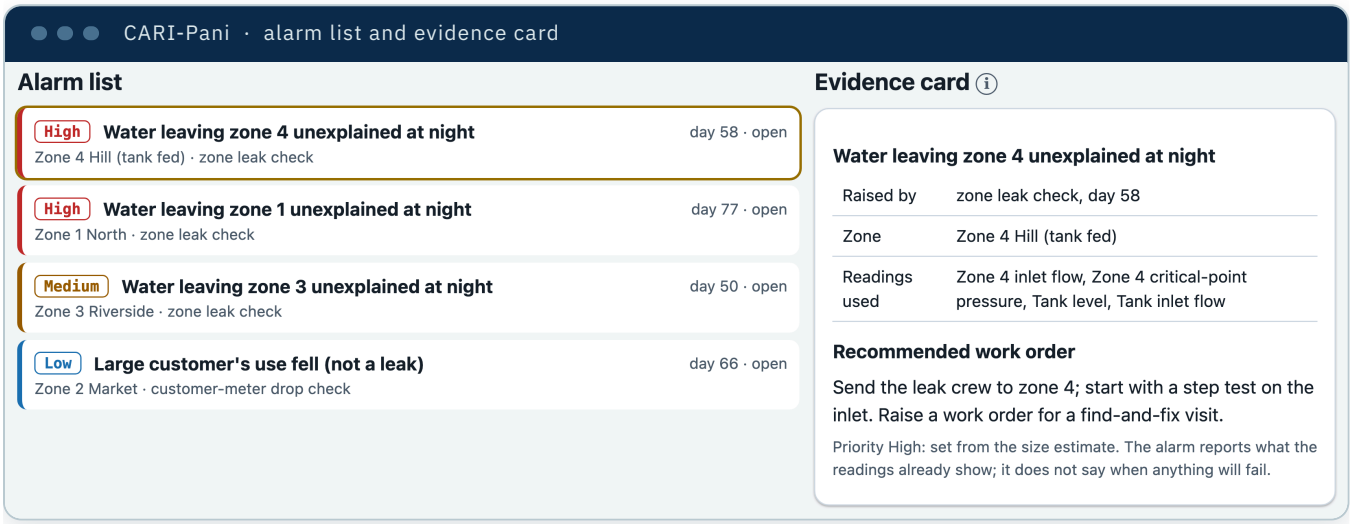
- Pump timetable for the day, around tariff hours and tank limits
- Valve timetable: each zone's turn
- Fire flow at hydrants
- Pressure surges after a pump stop
- Leak cost at your water price

Send your pipe list as a table. Year laid, material, length and breaks, with any column names.

THE RANKED WORK LIST

From a long list of records to one list of work.

One report across your zones, pumps, tanks, meters and pipes, with the problem that matters most at the top. Each alarm names what changed, the likely cause, what to check first and the readings behind it.



Alarm list and evidence card from the app, on its example network. Each alarm is graded High, Medium or Low (P1, P2, P3 in the sample alerts below).

P1 Zone Z-7: new water loss
Flow higher than on similar days. Check first: the zone's mains and valves.

P2 Pump P-2: restarts too soon
After the duty pump stops. Check first: duty-pump trips.

P3 Meter M-14: running backwards
Check first: how it is fitted.

Illustrative sample. Zone and unit names are examples. P1 act now. P2 plan this month. P3 note.

Readings shown
Each alarm lists the readings behind it.

Likely cause
Each alarm names the likely cause and what to check first.

One ranked list
The problem that matters most is at the top.

Read-only. CARI-Pani changes nothing in your network. Your crew repairs; the repair check then shows the zone back inside its usual range.

REPORTS AND ALERTS

A plain-words report, in your language.

Written for the engineer who will walk the zone and for the manager who signs the work order.

English	हिन्दी	मराठी	ગુજરાતી
report and alerts	Hindi	Marathi	Gujarati

Choose the language when you get your report.

What every report holds

- Overall: one line for the network
- Zones and assets by priority
- Each alarm: what changed, the likely causes, what to check first, the readings behind it
- Data coverage and quality
- Checks run, and which readings each used

As PDF and CSV.

Alerts by WhatsApp, SMS or e-mail

In the same four languages, sent from your own sender accounts.

TODAY'S ALERTS

P1 **Zone Z-7: new water loss**
Flow higher than on similar days. Check first: the zone's mains and valves.

P2 **Reservoir R-2: supply hours short**
Ward 14 received water for 3 hours against 4 planned.

Illustrative sample.

Three channels, one alert

WhatsApp · SMS · E-mail

SAMPLE MESSAGE

CARI-Pani alert
Zone Z-7: water use higher than on similar days. Check first: the zone's mains and valves.

Illustrative sample.

Who reads what

The manager
One line for the whole network and the ranked list.

The engineer
Each alarm with the likely causes, what to check first and the readings behind it.

The crew
A short alert by WhatsApp, SMS or e-mail, in their language.

Your records team
A CSV of every alarm and every check, for your own files.

Alerts are built in. They go from your own WhatsApp, SMS or e-mail sender accounts, to the people you name.

PROVEN ON REAL RECORDS

Scored on real water-network records.

CARI-Pani has been tested on real water-network records.

6 days
Zone alarm before the repair
A leakage district: the zone alarm came six days before the leak was repaired, from the inlet flow alone.

About half
Of a city's main breaks
Over ten years, about half fell in the top tenth of our pipe replacement list; a list by pipe material alone caught about a third.

7 of 8
Labelled test changes caught
In real water-quality readings, with no false alarms.

Most
Logged pump-failure days named
At a water-supply pumping station, with few false flags.

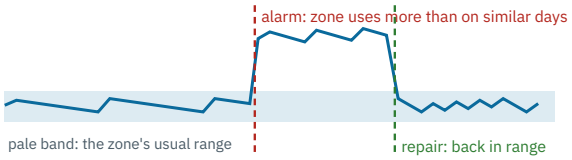
Also checked on real records

- A network model matched measured pressure at all six block inlets in a month it had not seen
- Supply hours read within a quarter of an hour on most days, in three months not seen before
- Large meter faults found on real smart-meter records
- Listening-logger records: additional loggers flagged for a visit beyond the maker's own list

Checked against the standard open tools

Our planning calculations were compared with the standard open tools on standard test networks: EPANET, WNTR, TSNet and EPANET-MSX. The technical annexe lists the test cases and their results.

A leakage district, day by day



Drawn example of the alarm and the repair check.

A city's main breaks, ten years



The share of breaks that fell in the top tenth of each list. Scored on breaks the ranking had not seen.

EVERY RESULT, WITH ITS RECORDS

The technical annexe lists the test cases and their results, with the records each was scored on.

BUILT FOR INDIA

Works the way your network works.

Supply a few hours a day

Supply hours by ward, tank balance fill by fill and tanker plans.

Typed log sheets work

Send a simple table, one reading per row.

Alerts where your team is

WhatsApp, SMS or e-mail, in English, Hindi, Marathi and Gujarati.

Who it is for

SECTOR	YOU HAVE	YOU GET	START WITH
Water utilities	City water boards and municipal corporations	Zones ranked by water lost; pumps and meters to visit; pipes in replacement order with a yearly plan; supply hours by ward.	One or two zones, a pumping station and the pipe list
Municipal networks	Zone inflow meters, trunk mains, reservoirs, customer meters, a pipe register	Zone losses and the repair check; tank and reservoir balance; meters listed for a visit; quality alerts.	A few weeks of zone inflow and your meter totals
Supply managers	Supply a few hours a day, overhead tanks, tankers, typed log sheets	When supply came and for how long; tank balance fill by fill; tanker plans.	Your log sheets, typed as a simple table

WHERE IT RUNS

On your own PC.

Your first report is run at our end from the files you send. Continuing monitoring runs on your own computer; it reads your records only and never changes a setting.

START WITH WHAT YOU HAVE

- Zone inflow, for a loss report
- Pump logs, for pump checks
- A pipe list with breaks, for replacement planning
- Typed log sheets, if there is no control room

Built for: water utilities, municipal networks and supply managers. What you get depends on which records you send.

GET STARTED

Start with one zone.

CARI-Pani is CARIMO's water-network software.

1
You send
A few weeks of zone inflow to start; your pipe list for a pipe plan.

2
First report
Run at our end on your records; scope agreed with you.

3
Review call
Findings gone through with your engineers.

4
Continuing monitoring
On your own computer, with reports and alerts, if you want it.

WHAT TO SEND TO START
- Scope: which zones, pumps, tanks and meters
- Records: a few weeks of exports or typed sheets
- Pipe list, to get your pipes ranked
- Your prices, for the money view

WHY CARIMO
- DPIIT-recognised Indian startup
- Incubated at SINE, IIT Bombay
- Each alarm lists the readings behind it
- Tested on real water-network records

SEE CARI-PANI ON YOUR NETWORK'S RECORDS
Ask for a demo and the 3D walkthrough. We set CARI-Pani up with your team and read the report through with your engineers.

WRITE TO US
contact@carimo.tech
carimotech.com

CARI-Pani · what your first report shows: the ranked alarm list

Alarm list

- High **Water leaving zone 4 unexplained at night** — day 58 · open
  Zone 4 Hill (tank fed) · zone leak check
- High **Water leaving zone 1 unexplained at night** — day 77 · open
  Zone 1 North · zone leak check
- Medium **Water leaving zone 3 unexplained at night** — day 50 · open
  Zone 3 Riverside · zone leak check
- Low **Large customer's use fell (not a leak)** — day 66 · open
  Zone 2 Market · customer-meter drop check

Evidence card

Water leaving zone 4 unexplained at night

Raised by	zone leak check, day 58
Zone	Zone 4 Hill (tank fed)
Readings used	Zone 4 inlet flow, Zone 4 critical-point pressure, Tank level, Tank inlet flow

Recommended work order

Send the leak crew to zone 4; start with a step test on the inlet. Raise a work order for a find-and-fix visit.

Priority High: set from the size estimate. The alarm reports what the readings already show; it does not say when anything will fail.

The technical annexe lists every check and tool, what each reads, and the records behind every result.