



Developing and Benefitting From Intelligent Water Networks

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The world's water supply is FINITE

Due to major global changes only 0.08% of the world's fresh water is available for domestic use

FACTORS INCLUDE:

- Rapid population growth
- Migration
- Uncontrolled, unhealthy urbanization
- Land-use changes
- Economic expansion
- Changes in trade patterns
- Climate change negatively impacting water resources

WORLD'S WATER CONTENT



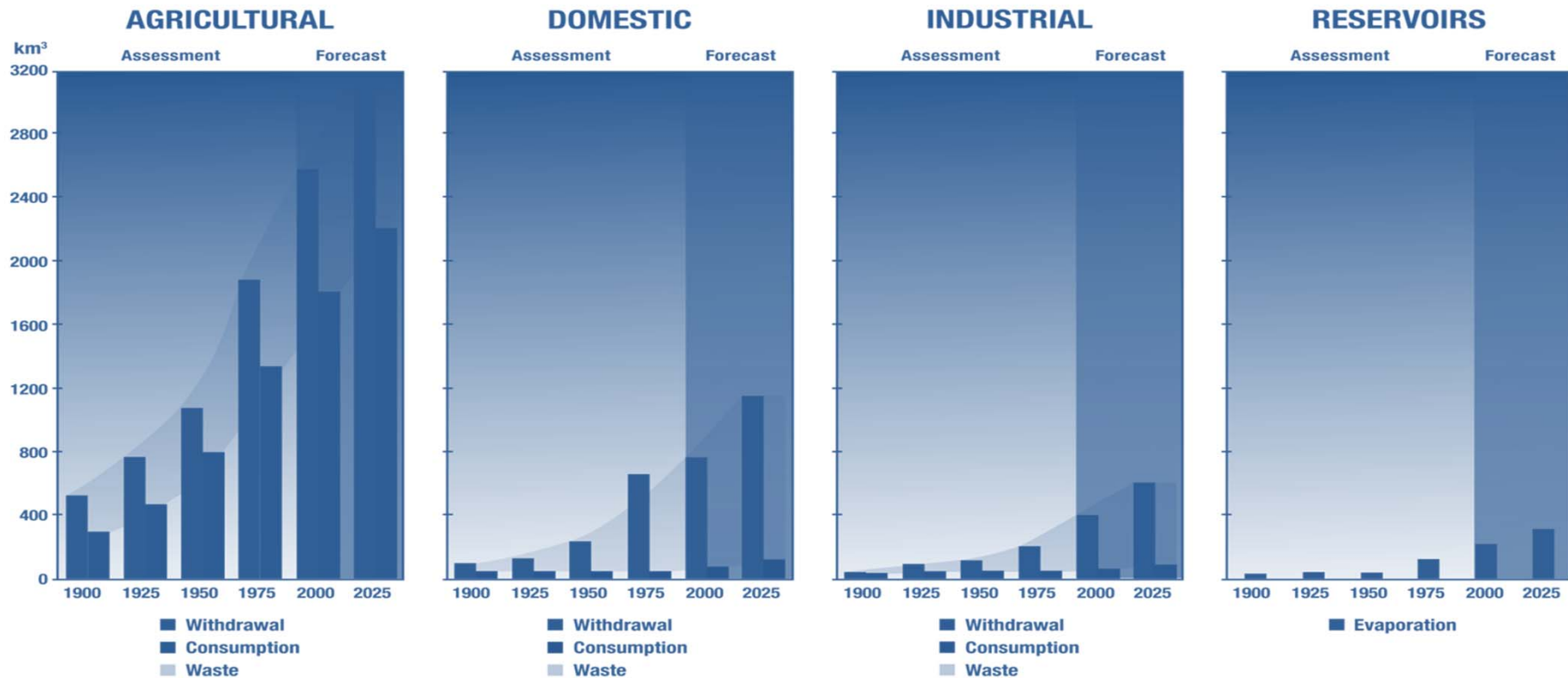
Source: www.unwater.org



Water USE and WASTE are at record levels

Domestic and Industrial Use is STAGGERING

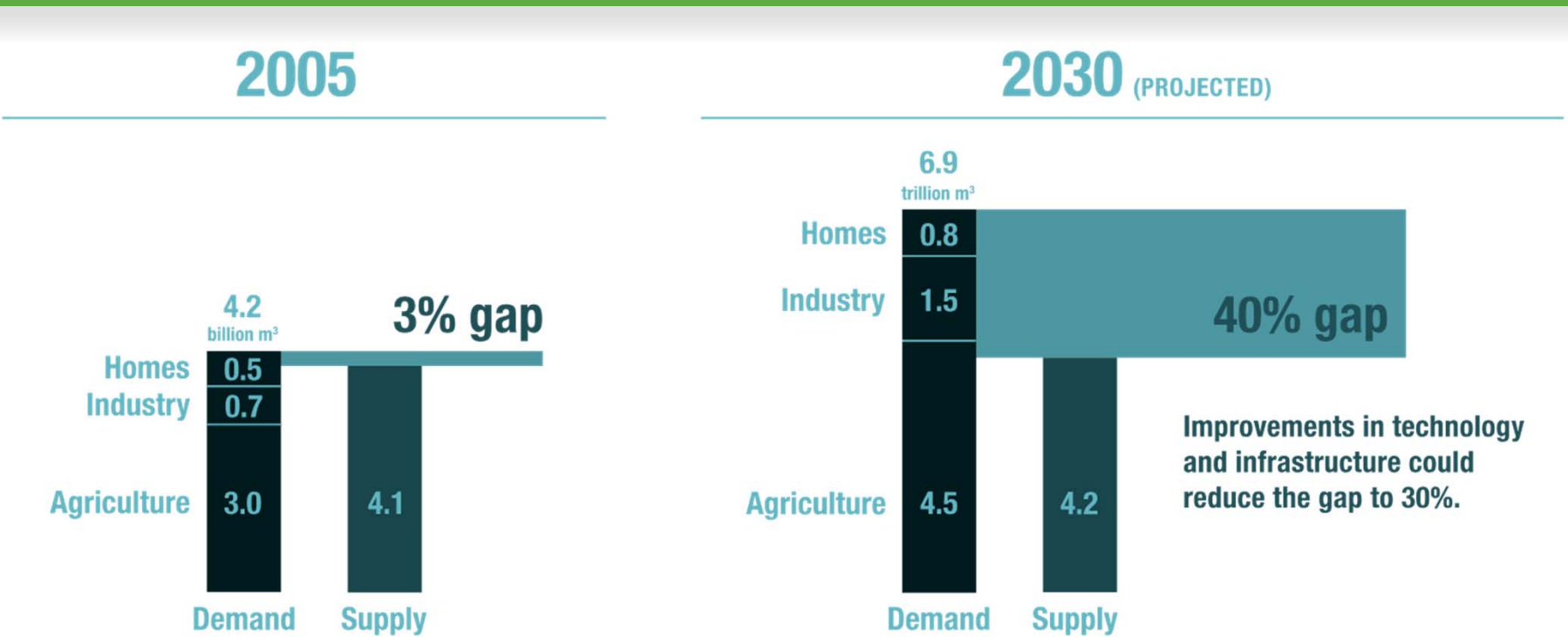
Evolution of Global Water Use Withdrawal and Consumption by Sector



Note: Domestic water consumption in developed countries (500-800 litres per person per day) is about six times greater than in developing countries (60-150 litres per person per day).

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999.

Conservative growth estimates forecast a 65% increase in water demand in a 25-year period. That's a 2.7 trillion gallon INCREASE.



Improvements in technology and infrastructure could reduce the gap to 30%.

EXHIBIT METHODOLOGY

Demand in 2005 is based on inputs from the International Food Policy Research Institute (IFPRI). 2030 projected demand is based on frozen-technology scenario and no increase in water efficiency after 2010.

2030 projected supply is existing, sustainable supply at 90% reliability, including infrastructure investments scheduled and funded through 2010, net of environmental requirements.

40% gap is derived from subtracting volume from basins with deficit supply (2,765 bcm) from total demand then adding volume from basins with surplus supply (81 bcm).

Source: "The Business Opportunity in Water Conservation" McKinsey Quarterly 2010 Number 1

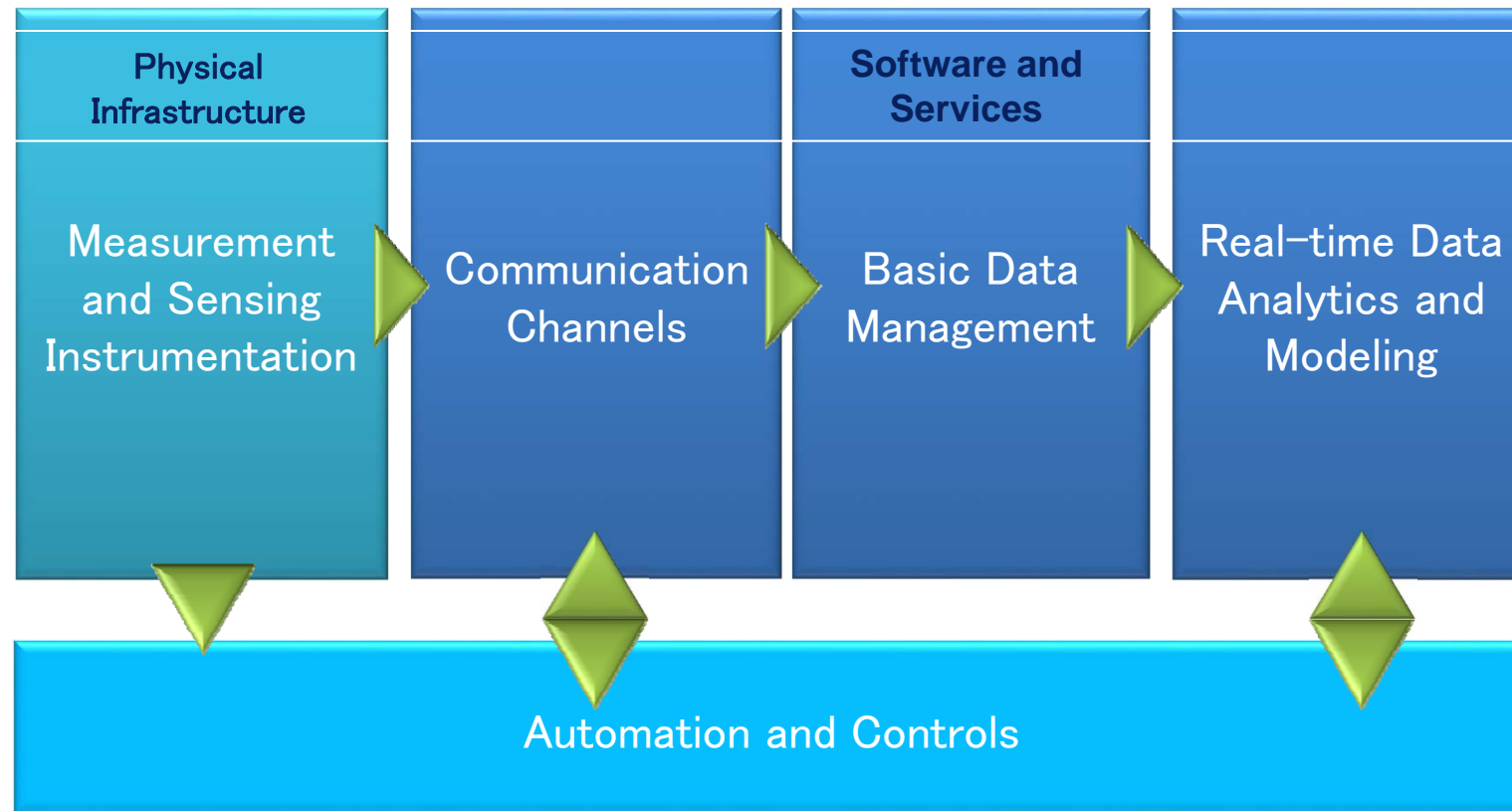


Water SCARCITY is a growing problem worldwide

Technology can help bridge the GAP

Smart Water Networks

Five layers of a comprehensive Smart Water Network



Automated Physical Network Infrastructure

How does a shift towards a Smart Water Network change the role of the meter?



**From billing tool to
Smart Water
endpoint and enabler
for Data**

Pre-requisite : ACCESS TO DATA

Where should data come from?

- Any significant network point

What kind of data should be used ?

- All meaningful data, of which correlation brings added value information
- Set-up of a network is not universal but individual to each water company

Most importantly : data collected is trustworthy and doesn't change with time

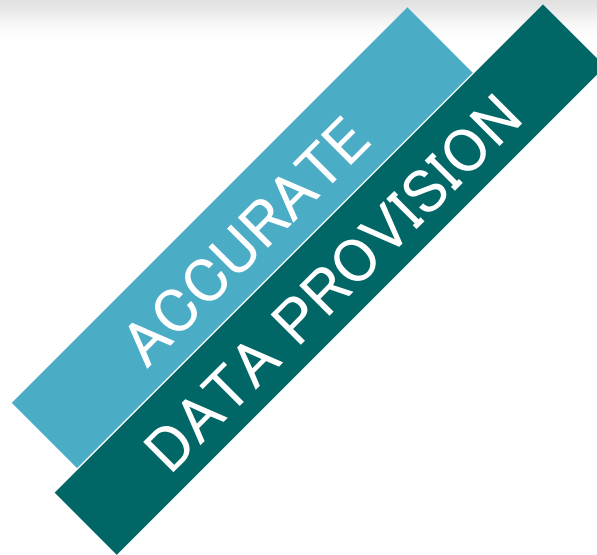




With a **focus on data** and **long term meter accuracy** solid state metering technologies are **moving into the foreground**

Solid State metering can deliver:

- Sustained accuracy through life of asset
- Extended working flowrange
- Performance **uninterrupted** by installation conditions



With a shift to **electronic meters**, modular RF solutions are **no longer** required

- Data delivered can be **relied upon**
- Data collection methods can be designed **according to utility requirements**
- Technology **delivered today** should **open doors** to future **development** and **efficiencies**

While considering meters as Data Endpoints, what else could they bring?

Pressure

pH

Chemical content

Consumption control

?

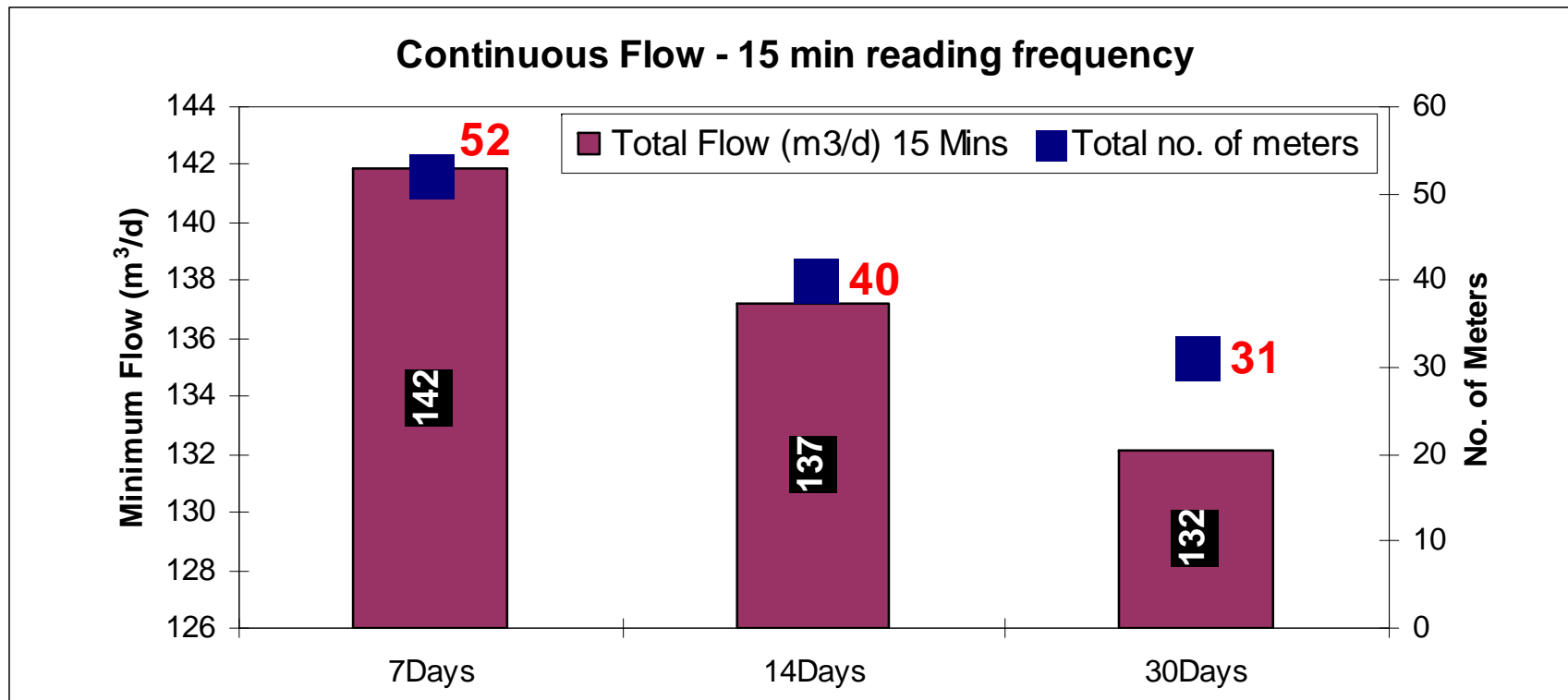
How does data frequency effect the value of the data?

Smart Water Meters as part of a network are providing tremendous **opportunities** for water **utilities**

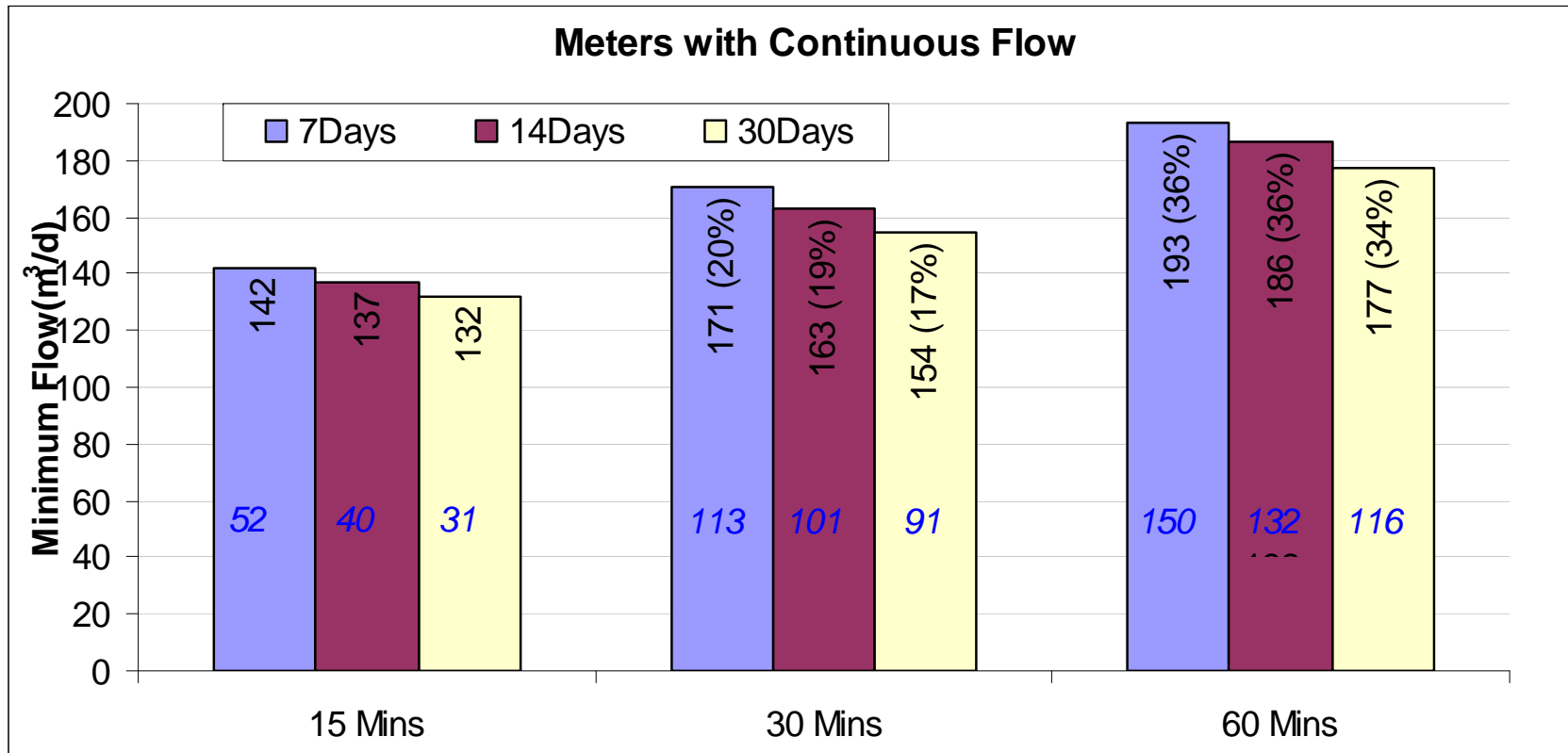
Implementation results in:

- Significant financial savings
- Increased understanding of actual consumption losses
- Preparation for an increasingly resource-constrained future

Impact on data due to duration. The Thames trial



Impact on data based on frequency. The Thames trial



Smart Water Meter Benefits

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The Future

The future of **Smart Water Networks** will rely on the partnership between **people and technology** to address one of our most precious resources: **water.**

The vision of **safe clean drinking water** for all is one that Smart Water Networks can help to keep **in focus.**