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Water: Under Pressure

New thinking for the world's oldest resource

Asia's water resources have never been more critically challenged. A fast-growing and dynamic region, Asia and the Pacific are experiencing an overall trend for urbanisation that is causing significant water-related challenges to country governments and local communities alike.

Almost 500 million people in the region still do not have access to at least basic water supplies, and 1.14 billion lack access to basic sanitation. And, with an estimated 2.5 billion people or 55% of the population projected to live in the region's urban areas by 2030, water demand will increase dramatically due to concomitant growth in the domestic and industrial sectors, particularly agriculture.

Disasters caused by climate change - massive storms, fires and the like - exacerbate the water security issue, making it an even more important, yet elusive, goal.

Autodesk helps you protect every drop

In over 100 countries across the globe, local authorities, municipalities, utilities, consultants and a wide variety of other users rely on Autodesk's software to optimise their work.

Autodesk's comprehensive suite of products is designed to work together, as well as to integrate with other standard architecture, engineering and construction (AEC) software and systems. Enabling the design and delivery of critical services in water and wastewater, Autodesk solutions support system resiliency, maximise the value of assets, and help to protect and enhance the environment.

Autodesk's industry-leading software supports you in managing water, from source to outfall:

- Design drainage, including green/sustainable drainage (SuDS, WSuDS, LIDs)
- Design and model sewerage and wastewater systems
- Model catchments and watersheds, integrating rural, urban, and river, with 1D and 2D hydraulics, and industry-leading flood models
- Model and optimise clean water distribution
- Carry out live modelling, forecasting, and analytics, for better, more informed decision-making as events unfold
- Manage and maintain water infrastructure assets effectively

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Drainage

Urban sprawl, coupled with structural, hydrological, socioeconomic and climatic factors, has made storm water drainage a serious problem for many cities in Asia. Waterlogging and urban flooding incidents are likely to worsen as climate change impacts the region, increasing the frequency of short duration, high-intensity rainfall events. Additionally, many low-lying areas have not been adequately protected from infrastructure development, reducing permeable land and causing excess flooding from poorly-managed runoff.

InfoDrainage is a full design and analysis solution that designers, developers, landscape architects, engineers, consultants, and approval authorities rely on to deliver sustainable, cost-effective, reliable and compliant designs.

InfoDrainage allows you to...

Take the complexity out of drainage design
Improve efficiency, compliance and control across the lifecycle of your project. Saving time on sustainable designs allows you to accelerate workflows and obtain faster approvals.

Accelerate BIM workflows
Built-in integration with Civil 3D and data exchange with other CAD and GIS platforms shortens design time.

Simplify regulatory compliance
Use auditing tools to simplify compliance to generate customised reports and templates that suit the local regulations in your area.

Protect communities and the environment
Help flood-prone areas manage runoff in a sustainable way by adding green infrastructure to your drainage designs.

Sewer, Storm and Flood

In the next several decades, Asia will be particularly susceptible to the damaging effects of climate change. The Inter-governmental Panel on Climate Change (IPCC) forecasts that heavy precipitation will increase over much of the continent, and that regional mean sea level will continue to rise, along with coastal area loss and shoreline retreat.* Severe flooding wreaks havoc on all infrastructure, but particularly on wastewater and potable water collection, treatment and distribution systems. Fortunately, Autodesk's ICM suite enables country, state and local governments and utilities to cope with these looming challenges.

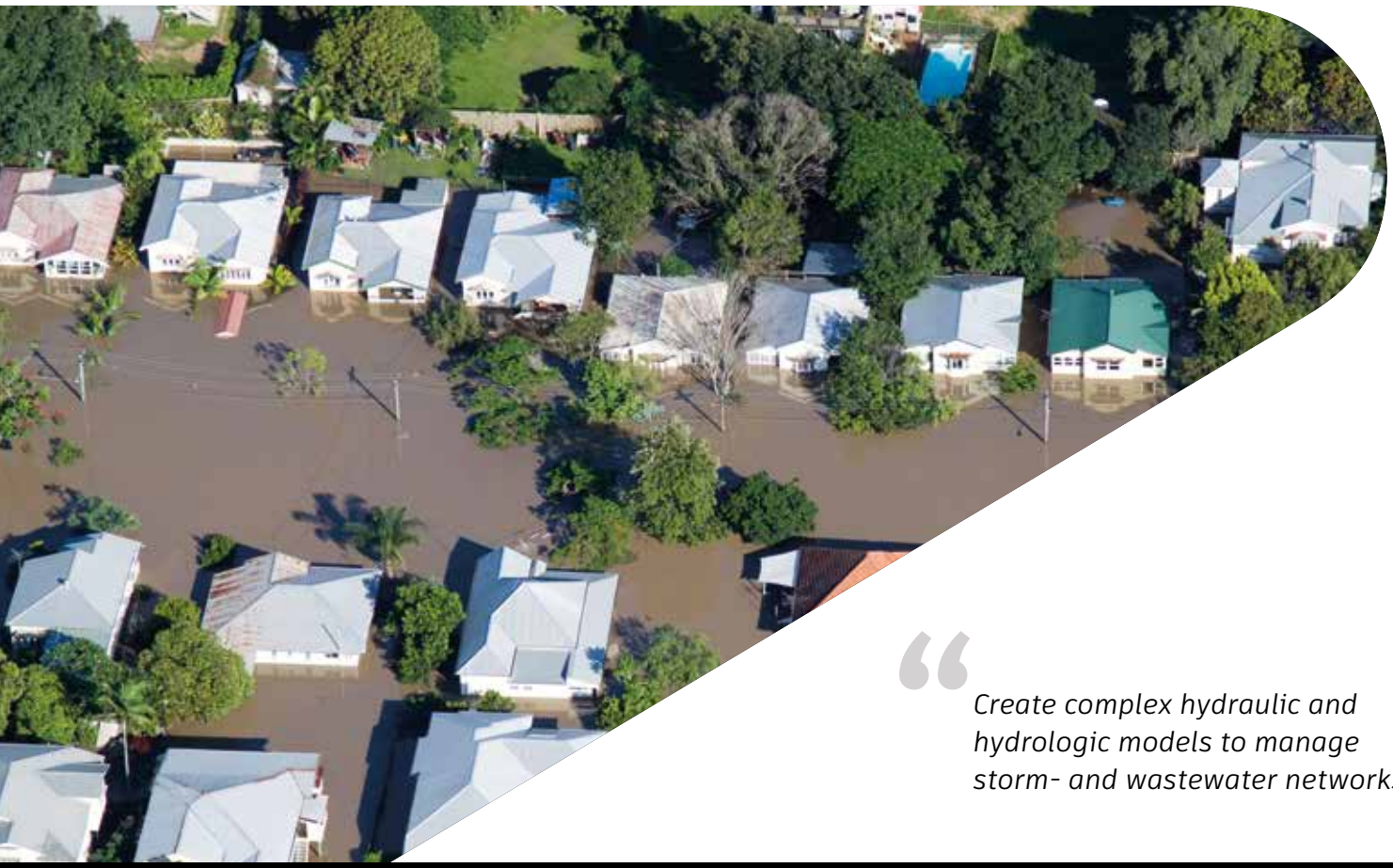
InfoWorks ICM is an advanced integrated catchment management software for modelling complex hydraulic and hydrologic network elements quickly, accurately, and collaboratively for water and wastewater. With InfoWorks ICM, you can prepare and manage your stormwater and wastewater networks by building accurate and holistic models to better respond, plan and fulfill the needs of your community.

With InfoWorks ICM, you can...

Deliver quality with one platform
Create or import a project in InfoWorks ICM, with simulation solvers in one place. Integrated catchment modelling and stormwater management model (SWMM)-based hydraulic assessments allow for rich simulation of rivers, sewer systems, run-off calculations and overland flooding.

Save time on projects
Increase collaboration and reduce project downtime with fast simulations so you can make clear and decisive engineering decisions. Streamline model building and data entry to free up time for interpreting results.

Improve spill and flood risk protection
Quickly delve into complex infrastructure challenges and return with comprehensive understanding and solutions. Explain water issues to your community and provide them with migration plans and confidence in your decisions.



Create complex hydraulic and hydrologic models to manage storm- and wastewater networks

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Water Distribution

Water distribution capabilities differ widely across Asia, with some countries having invested strongly and early in the development of modern water treatment systems that are now among the best in the world. Yet, despite these achievements, over 1.7 million people in the Asia and the Pacific still have no access to safe sanitation, 780 million still practice open defecation, and 80% of wastewater is disposed without appropriate treatment. As Asia is witnessing rapid urbanisation, the provision of safe sanitation remains crucial. It is estimated that 57% of urban dwellers lack access to toilets that provide a full sanitation service chain, including containment, treatment, and end-use treatment and disposal.

InfoWorks WS Pro can mimic operations. You can easily represent pump and valve controls, demands, and model elements (hydrants, meters) explicitly and understand the impact of any operation on the rest of the system.

InfoWorks WS Pro capabilities include

Assess large water models in record speed
Distribute computing-heavy simulations across dedicated servers and set up any simulation that runs multiple test cases to return optimised results.

Automate repetitive modelling work
Explore scripting to automate model maintenance and the import of data from different sources.

Mimic operations
Represent pump and valve controls, demands, and model elements (hydrants, meters) explicitly and understand the impact of any operation on the rest of the system.

Discover the benefits of Infoworks WS Pro

- Improve modelling team productivity
- Streamline model building and keep models up to date.
- Mitigate water loss, including leakage and pipe breaks
- Improve water system resilience.

InfoWater Pro, built on Esri's ArcGIS Pro, helps water modellers easily understand water system behavior and performance within a geospatial context. Engineers and GIS practitioners work directly from within ArcGIS Pro, for network model construction, graphical editing, hydraulic simulation, results interpretation, and map generation, including 3D map displays.

InfoWater Pro enables you to

Gain efficiency in building and managing models
Build and edit models efficiently leveraging a geospatial environment and tools. Don't leave the comfort of a GIS environment you are familiar with, so you can be productive modelling.

Understand operational impacts
Reduce energy costs and non-revenue water, and visualise results in 2D or 3D to gain better insights from the model.

Supply high-quality water
Understand the movement and concentration of water quality constituents, whether a single constituent or multiple interacting chemical species. Find sections of the network with old water and control odors.

Respond to emergencies effectively
InfoWater Pro lets you prepare to respond to incidents. You can proactively determine how many of your customers would be affected and how they would be impacted by a pipe break, a fire (ensuring enough pressure), a contamination, or an outage, such as a power outage or a pipe replacement.

Asset Management

Unlike other regions sporting greater similarity in development within and across countries, Asia has significant variability in water system maturity. Where water is reliably available, economic opportunities are enhanced; where water is scarce and unpredictable, economic and human development are often hampered. With growing demands and climate change affecting supplies, investments to manage water variability and scarcity will become even more important. Yet, these investments are unlikely to provide acceptable returns if their effectiveness cannot be well demonstrated. While lending for new infrastructure delivers some immediate benefits, such as improved customer coverage and lowered non-revenue water ratios, better asset management is critical to ensuring system longevity and sustainability.

Info360 Asset is a cloud-based application that empowers asset managers at water utilities, local councils, and consultants to streamline the process of delivering inspections for asset capture, condition assessment, risk management, and capital planning prioritisation.

With Info360 Asset:

Improve inspection delivery and review workflows
Multiple field and office professionals can review captured inspection data, promoting the publishing of quality inspection data.

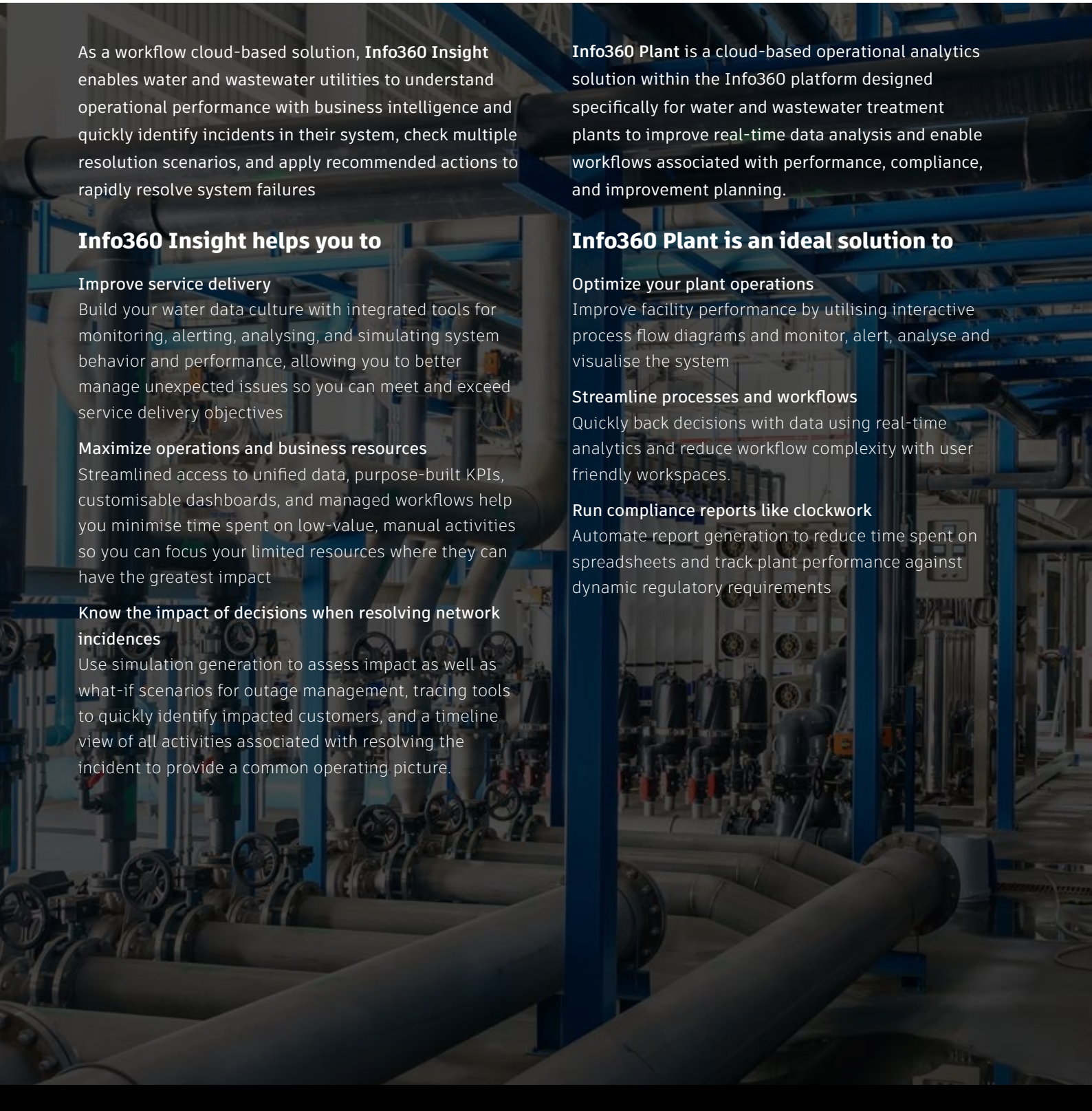
Justify risk-based decisions
Use a logical step-by step approach – inspection and condition to get risk results – and easily explain how risk was derived. Assess and document various risk scenarios and choose the optimal one.

Optimise your capital improvement program
Prioritise O&M and capital improvement plans using data and information, such as asset characteristics, inspections, condition, risk, and cost. Document and share your decision logic to speed up approval processes.

“Streamline the process of delivering inspections for asset capture, condition assessment, risk management, and capital planning prioritisation

Operational Analytics

For utilities in Asia region, the day-to-day management of water and wastewater systems entails unique and critical challenges. While this had long been the case even prior to the coronavirus pandemic, the accompanying economic crisis plunged the region into near-disaster, resulting in significant water quality and security challenges. Utility operators are now under even greater pressure to ensure the operational effectiveness and productivity of their water and sanitation services, not only as being necessary for daily living, but in fact to restart entire economies following future disasters.
These operators require more than just a one-size-fits-all data and analytics capability – they need bespoke solutions, highly tailored for their specific plants and communities. Autodesk exceeds these demands with two complementary products that enable real-time decision support for critical water systems operations.



As a workflow cloud-based solution, **Info360 Insight** enables water and wastewater utilities to understand operational performance with business intelligence and quickly identify incidents in their system, check multiple resolution scenarios, and apply recommended actions to rapidly resolve system failures

Info360 Insight helps you to

Improve service delivery
Build your water data culture with integrated tools for monitoring, alerting, analysing, and simulating system behavior and performance, allowing you to better manage unexpected issues so you can meet and exceed service delivery objectives

Maximize operations and business resources
Streamlined access to unified data, purpose-built KPIs, customisable dashboards, and managed workflows help you minimise time spent on low-value, manual activities so you can focus your limited resources where they can have the greatest impact

Know the impact of decisions when resolving network incidences
Use simulation generation to assess impact as well as what-if scenarios for outage management, tracing tools to quickly identify impacted customers, and a timeline view of all activities associated with resolving the incident to provide a common operating picture.

Info360 Plant is a cloud-based operational analytics solution within the Info360 platform designed specifically for water and wastewater treatment plants to improve real-time data analysis and enable workflows associated with performance, compliance, and improvement planning.

Info360 Plant is an ideal solution to

Optimize your plant operations
Improve facility performance by utilising interactive process flow diagrams and monitor, alert, analyse and visualise the system

Streamline processes and workflows
Quickly back decisions with data using real-time analytics and reduce workflow complexity with user friendly workspaces.

Run compliance reports like clockwork
Automate report generation to reduce time spent on spreadsheets and track plant performance against dynamic regulatory requirements

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Why Autodesk's software solutions for the water industry?

As a global leader in water technology with specialised expertise in the Asia-Pacific region, we are well-equipped to assist governments, utilities, consultants and industrial customers with their most pressing water-related challenges. We understand the differences and geo-political challenges in both developed markets and developing countries with respect to technology availability as well as water utilities' ability to invest. Whether your needs are basic or complex, our comprehensive suite of software products can help you improve your water productivity, resilience and service to your customers and communities. Call today!

Sources:
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