EC-LINK 中欧生态城

Europe-China Eco-Cities Link
中欧低碳生态城市合作项目

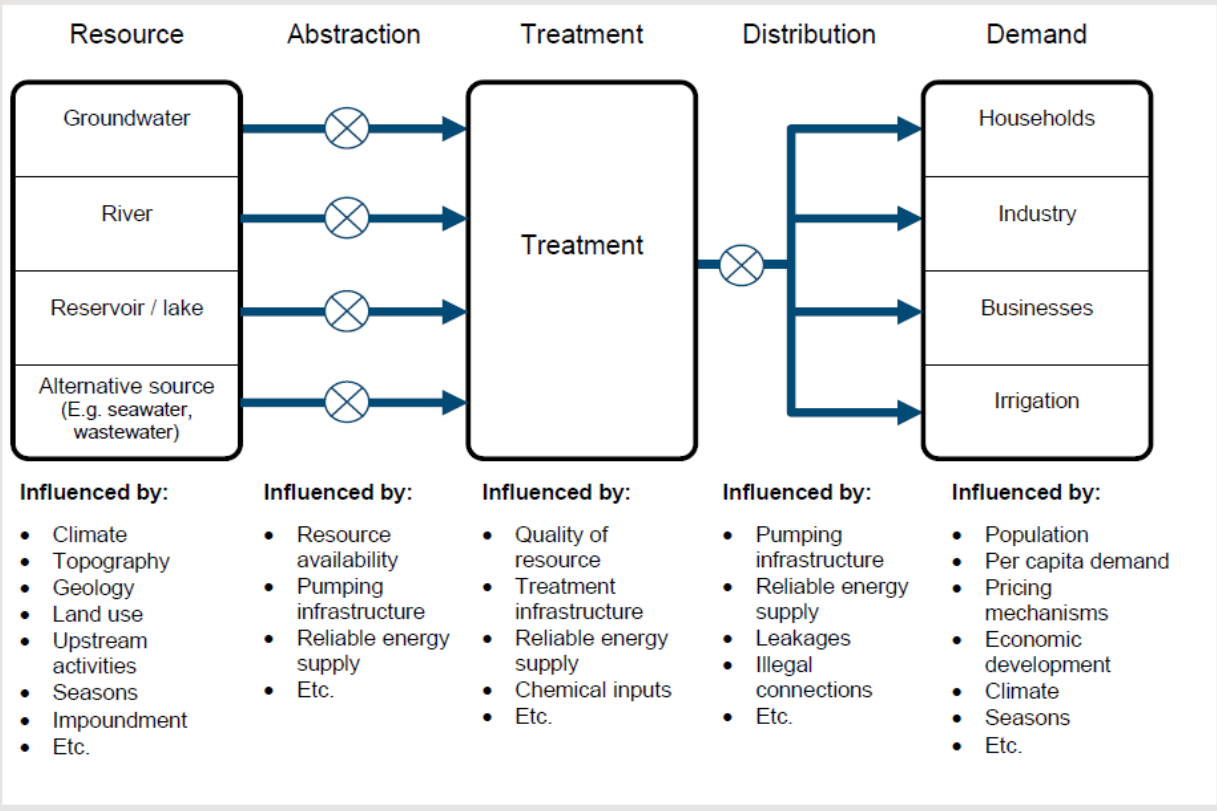
Primary Tools

Water Management

Water Safety Plans

What this tool does: This tool supports decision makers in development of Water Safety Plans. Water Safety Plans are increasingly a key element of reducing risks to drinking water, ensuring drinking-water quality from catchment to the consumer. A Water Safety Plan (WSP) is the most effective way of ensuring that a water supply is safe for human consumption and that it meets the health based standards and other regulatory requirements. It is based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain from catchment to consumer.

How does it work? The overall goal in water safety plans is the provision of safe, reliable and affordable supply of sufficient quantities of water for all.



Components of Water Supply Services[i]

There is a key difference between a conventional or an integrated approach. The integrated approach is supposed to achieve better performance:

- Increased supply will be possible even in an environment of difficult demand.
- Freshwater supply will in future consist of a mix of freshwater and alternative sources.
- Improved treatment technologies will be used, and be complimented by control of pollution at source.

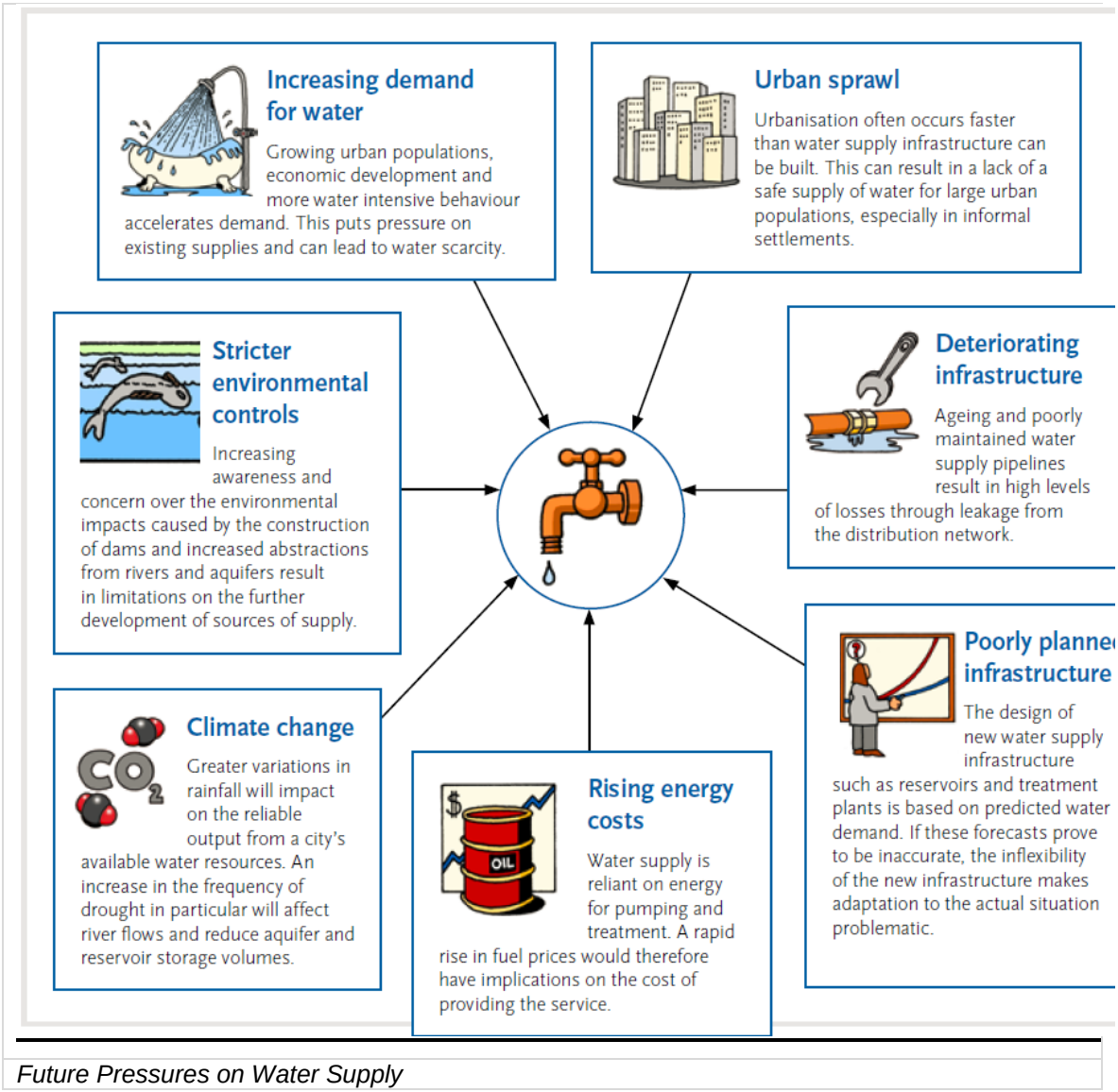
Aspect of water supply	Conventional approach (supply driven)	More integrated approach (demand driven)
Supply-demand balance	Increased demand is met through investments in resources and infrastructure to increase supply	Options to reduce demand, harvest rainwater and reuse
Treatment	Treatment technologies are improved in line with the type of pollutant that needs to be removed	Pollution control at the source and natural pre-treatment techniques are sought before new technologies are invested in
Leakage reduction	Leakage detection and repair is driven by economic factors	Leakage detection and repair is driven by economic, social and environmental factors
Pricing	Users are charged for water based on a fixed cost or, if available, the recorded volume they use	Users can be charged based on tariff systems that account for different volumes of use, purpose of use, season, etc.
Resource planning	Predicted resource availability is based on past hydrological records	Predicted resource availability includes adjustments for different climate change scenarios
Demand forecasting	Future water demand is forecast using historical trends, demographic estimates and projected economic growth	Future water demand is forecast by analysing future end uses in different sectors and is acknowledged as being uncertain.
End use requirements	Water of potable quality is supplied for all uses	Water of potable quality is provided only for uses that require it. Alternative sources are sought for non-potable demand

Conventional compared to Integrated Approach to Water Supply

Additional benefits of the Integrated Approach include:

- More efficient treatment of drinking water: Control of pollutants and the use of natural systems (such as riverbanks) to produce water of drinking standard.
- Economic savings: Reducing water demand results in less water to be treated and distributed. Savings in chemical and energy costs.
- Environmental protection and enhancement: reduced demand will result in less water to be extracted from the natural environment. It will help to maintain or restore ecosystems and natural watersheds.
- Improved services: Reduced demand and the use of alternative supplies relieve pressure on resources such as reservoirs and aquifers that may be scarce during dry periods. This reduces risks of water restrictions and supply interruptions for households, businesses and industry.
- Reduced carbon emissions: managing demand and source pollution will result in less energy consumed for the abstraction, treatment and distribution of water. This reduces use of non-renewable energy.
- Flood control: the collection of rainwater from roof surfaces for non-potable water supply reduced the volume of runoff that has to be managed by a city's drainage system. Reduced downstream flood and erosion risks.
- Reduced volume of wastewater: Low-flush toilets and greywater reuse for non-potable purposes reduces the volume of wastewater to be collected sand treated. This improves the performance and economic efficiency of the waste water process.
- Greater resilience: Uncertainty surrounding future demand and availability of supplies complicate decision-making for water supply investments. Solutions that target demand reductions and the use of alternative sources rather than resource development and

infrastructure expansion make it easier to cope with inaccurate forecasts and predictions.



Future Pressures on Water Supply

Credentials;

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Sources:

[i] Source: SWITCH. Training Kit – Integrated Urban Water Management in the City of the Future. Module 1- Water Supply - Exploring the Options. http://www.switchurbanwater.eu/

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