



Reforming water resource management to facilitate trade and investment

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Introduction

Paper explores how water trading and reforms to water rights could help across Europe in meeting the challenge of increasing water scarcity

- Impact of climate change on Europe's water resources
- Challenges for water resource management
- How can water trading help?
- International experience with water trading
- Addressing barriers to trade
- Conclusions

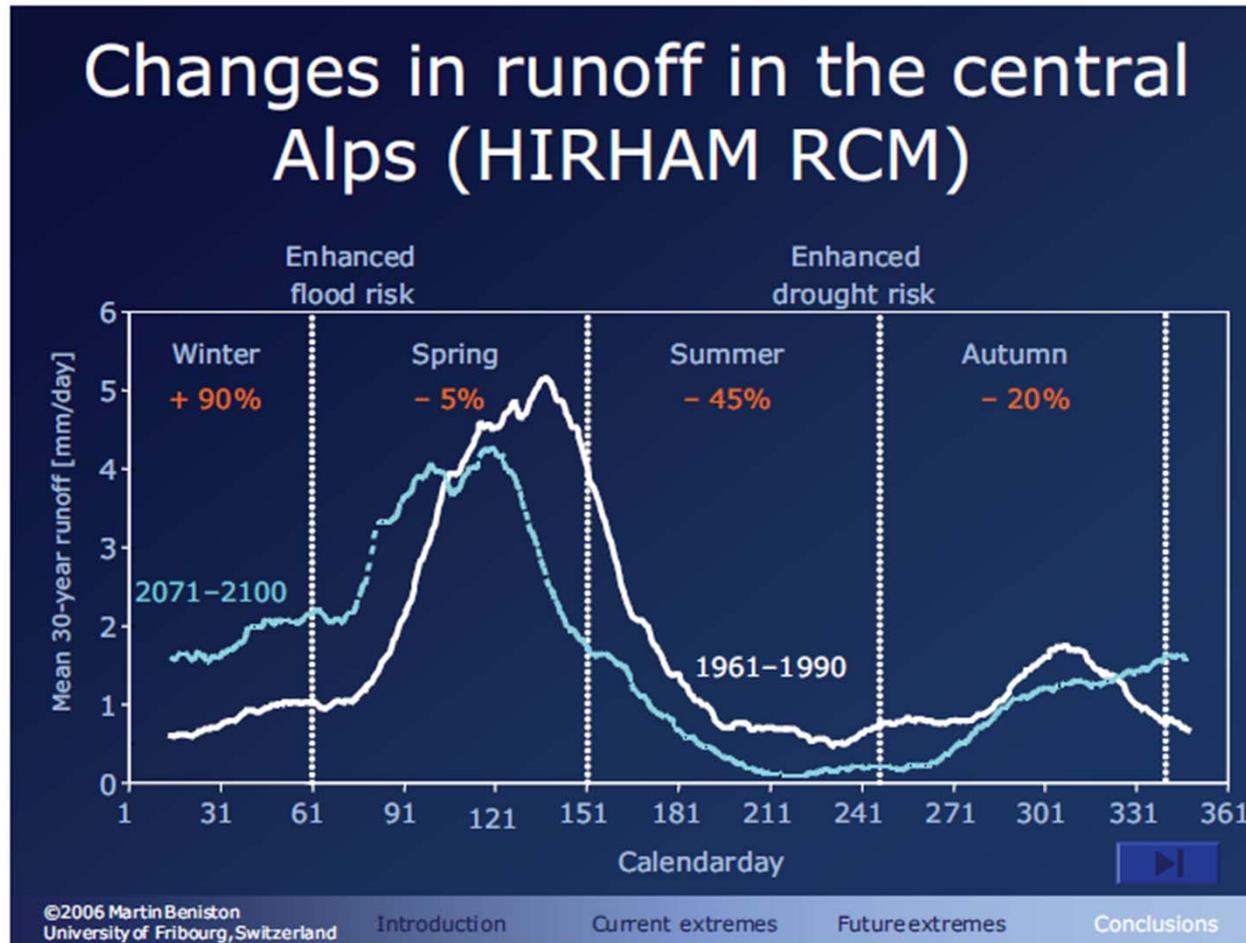
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Impact of climate change

Climate change is expected to have a material impact on Europe's water resources

- Modelling suggests rainfall patterns will shift both seasonally and regionally by the end of the century
- Southern and Eastern Europe
 - summer rainfall (already low) may continue to decline
 - lower availability and increased demand
 - increased need for water storage across seasons
- Northern Europe
 - winters will become wetter
 - greater risk of flooding and pressure on drainage infrastructure

Illustration of impact in central Alps



Source: Climate Change and water adaptation issues, EEA Technical Report 2/2007, Beniston (2006)

Water resource management

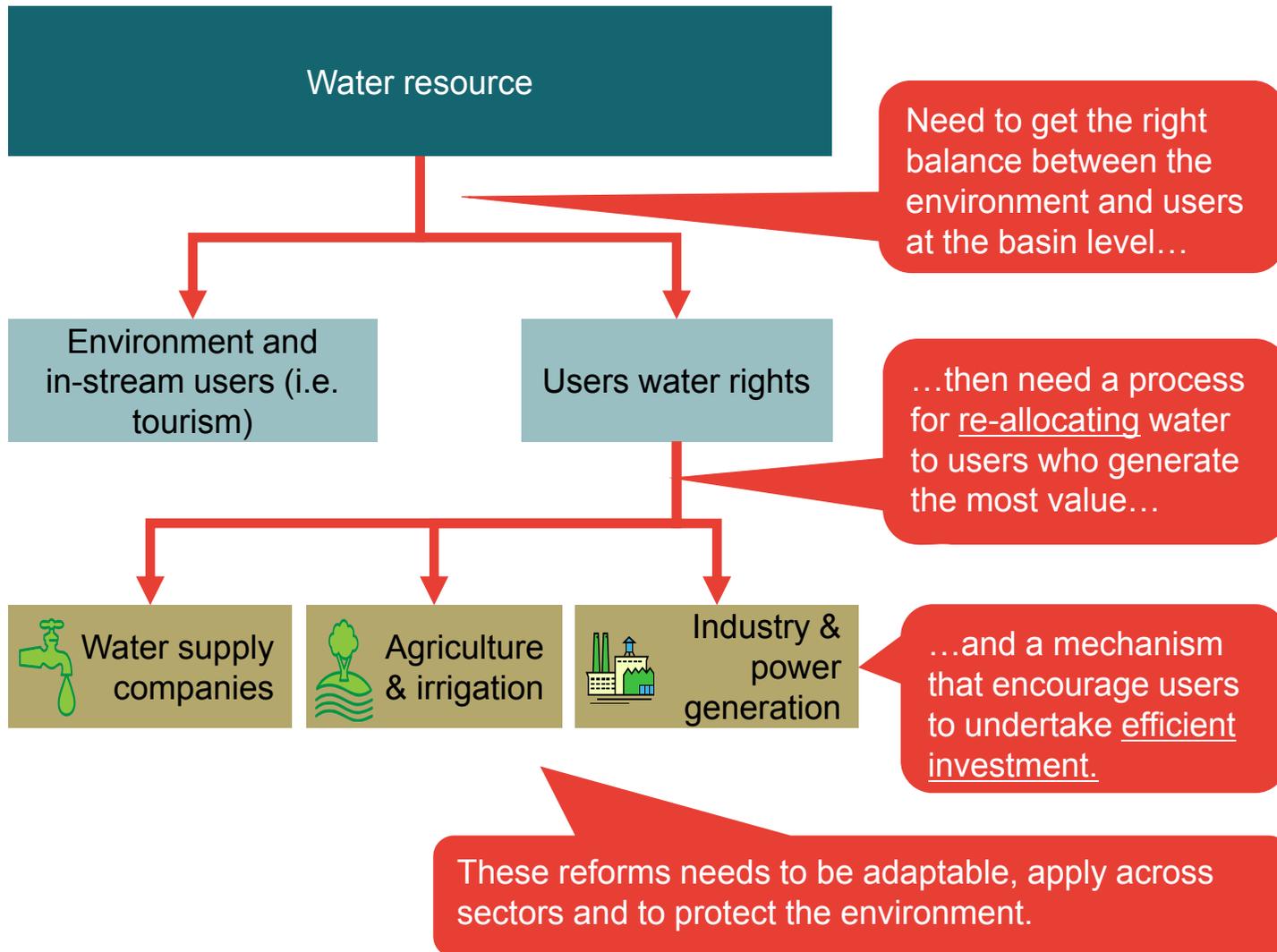
Three challenges for water resource management

1. Impact on the environment from reduction in water availability
 - balance between needs of environment and needs of users
 - in context of WFD
2. Water for users should be allocated to those that value it the most
3. Infrastructure may become unfit for purpose
 - investment and innovation in water transfer, treatment and drainage assets

Criteria for effective policies

- Any policy response needs to be adaptable and flexible
- A cross-sectoral approach will be needed – unlikely that solutions will sit with just one sector
- Focussed on the environment – need to sustain the resources' ecosystem: within the year and in longer term

Challenges for water resources



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Role of water trading

Water trading can help address the second and third challenges

- Water Framework Directive is primarily targetted at the first challenge
 - does not touch on issue of water rights
 - or process for allocating rights between users
- Trade is an effective mechanism for re-allocating water
 - ensures water resources are put to best use – inefficient or low-value users will be encouraged to release water
 - can be more adaptable to evolving circumstances than an administrative approach
 - promotes efficient investment in infrastructure – by revealing value of water and by protecting users' rights

What do water markets look like?

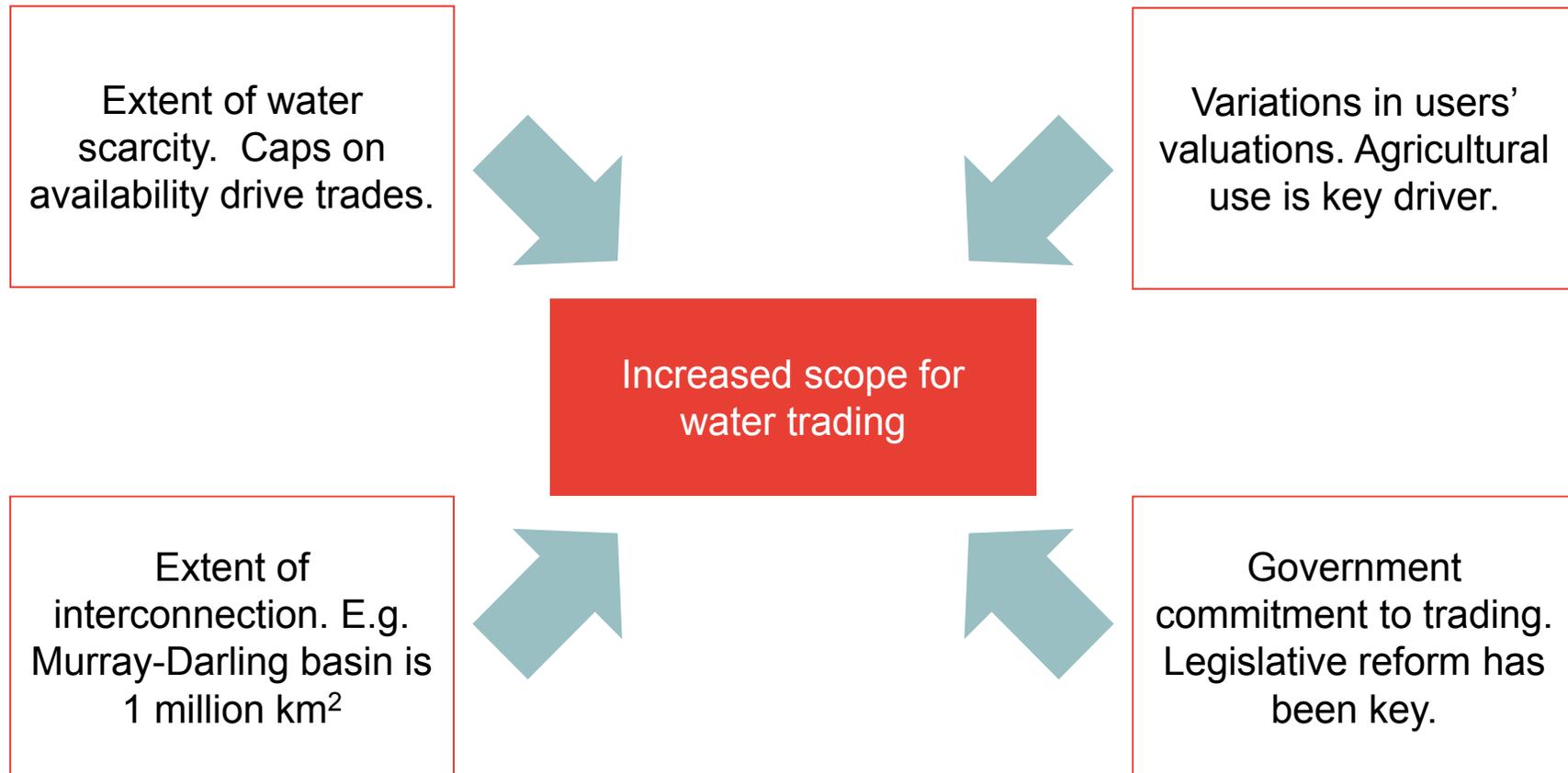
Water markets are likely to be geographically limited, unless there is an interconnected water grid

- Markets can involve treated or untreated water – trades can be temporary or permanent
- Temporary water trade or short-term lease or water rights
 - provides flexibility to respond to changing seasonal conditions
 - example: in 2007/08 drought in Australia, horticulturalists bought significant volumes from dairy producers
- Trading of water rights or long-term leases
 - in long-term users can change their demand for water or investment in storage
 - ability to trade rights promotes efficiency and investment or entry / exit decisions

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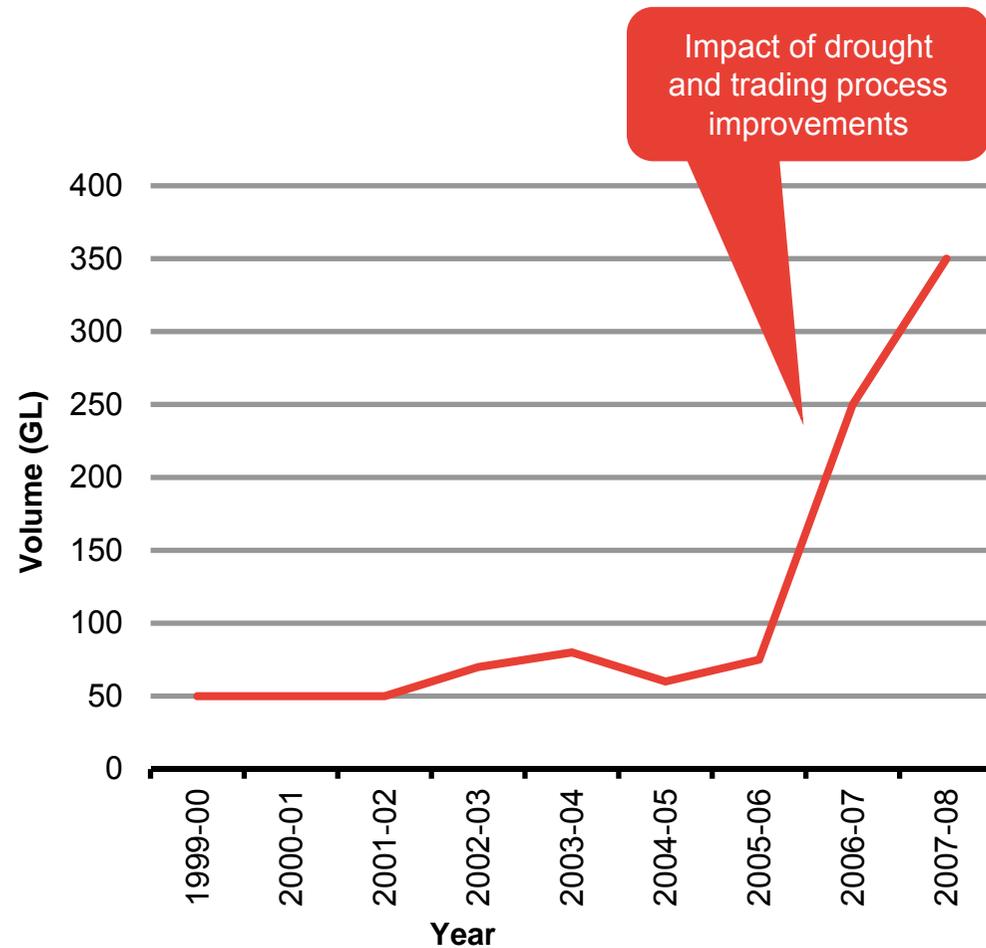
International experience with water trade

Some water trading already occurs in Europe. More significant trading occurs in Australia, Chile and western USA.



Australian water market outcomes

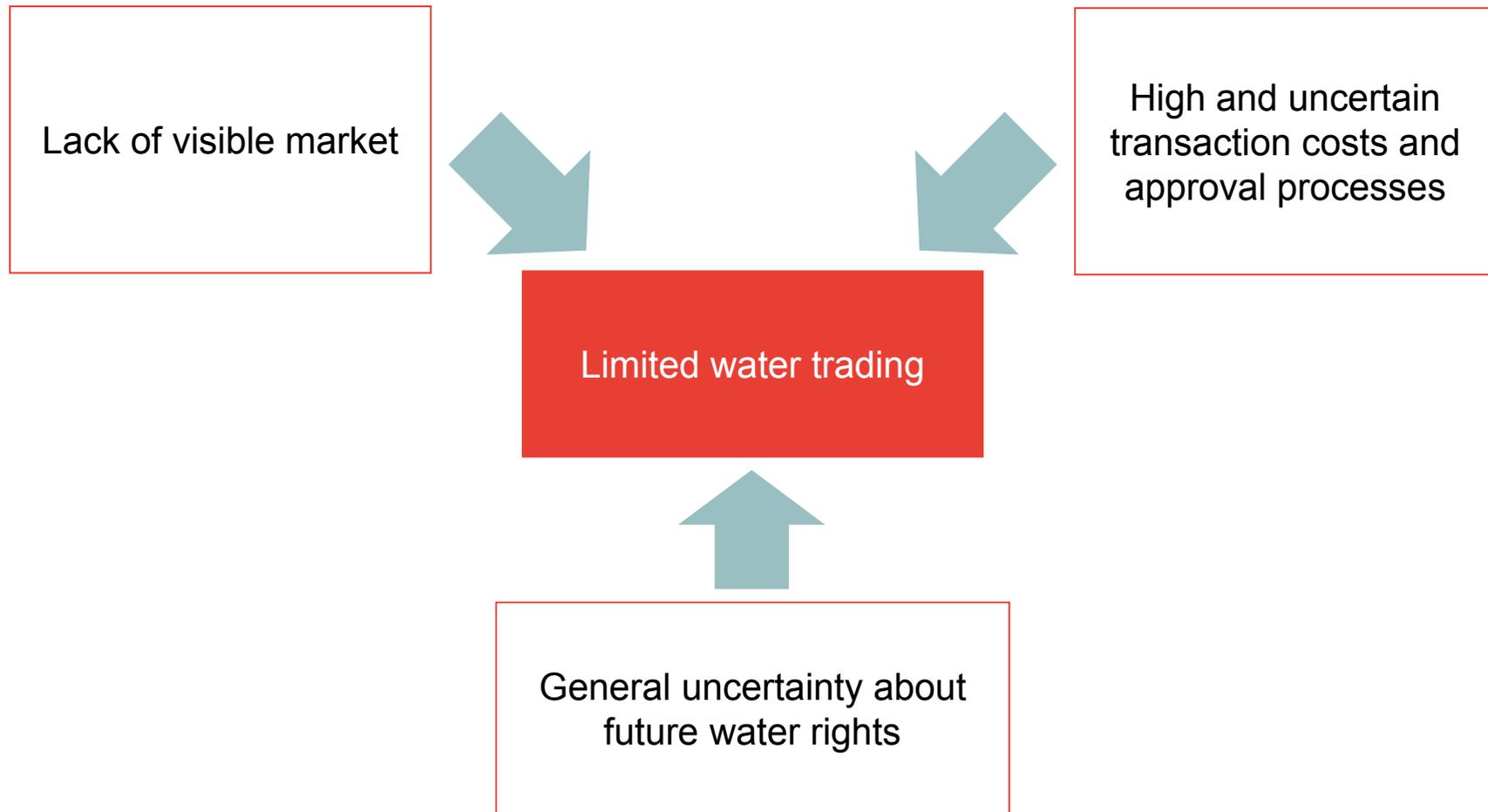
- Following prolonged drought and water reforms, rights trading increased 600% 2000 to 2008
- Trading in water exceeds trade in water rights
- Market outcomes in 2007/08
 - market value of A\$1.68 billion
 - approx 20% of total water use in Murray-Darling basin was traded



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Barriers constraining the development of water markets

Experience in the UK has identified some general barriers to trade



Increasing the visibility of the market

In making decisions about trade, participants need to understand

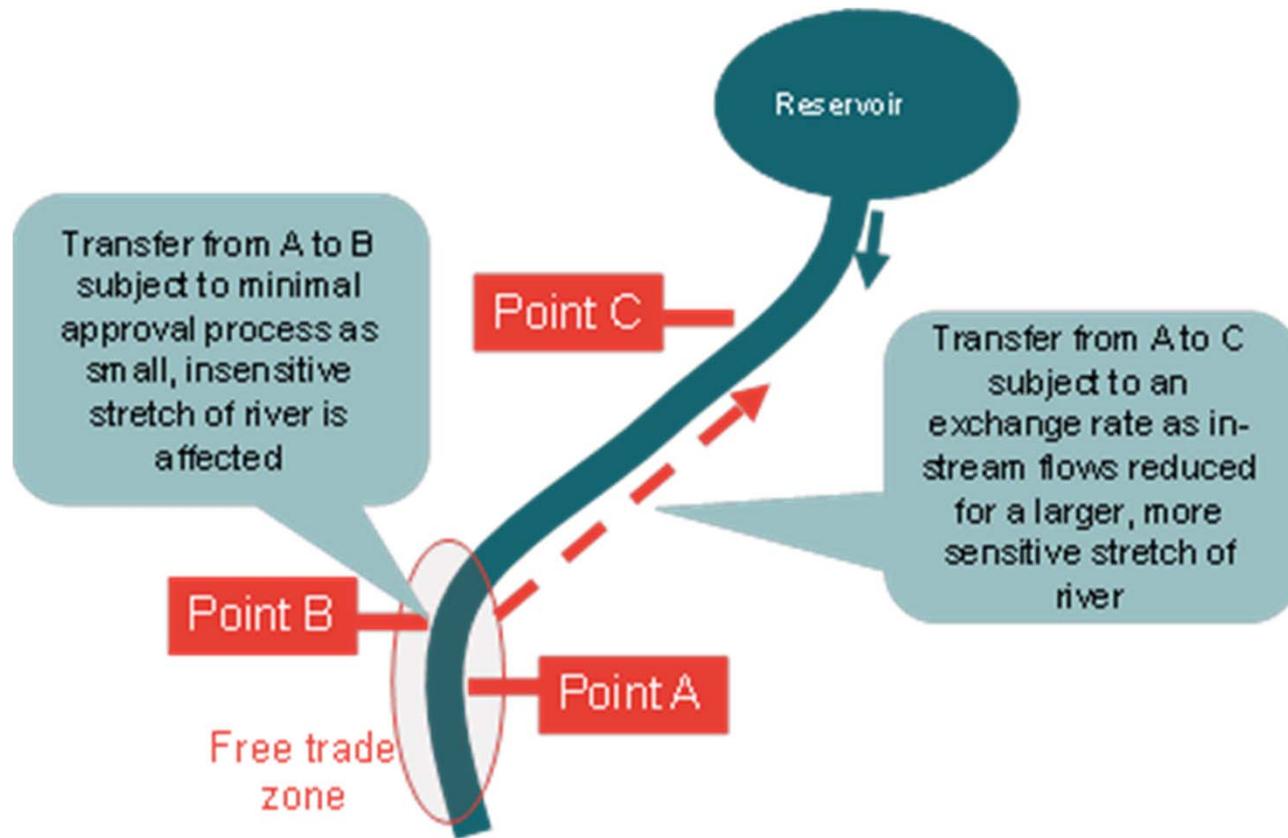
- where there may be rights available for trade
 - characteristics of the rights
 - likely market prices
- Addressing the barrier
 - public domain information on water rights and licence conditions
 - support development of platforms for publishing buy & sell offers
 - publishing (anonymised) traded prices would provide additional information to participants

Reducing transaction costs

Local environmental impacts can add complexity to trades. Managing these impacts in most efficient way will promote trade.

- streamlined approval process for some trades
- case-by-case process for more complex
- Addressing the barrier
 - pre-approved trades – where location or use is unchanged
 - generic methodology (or exchange rates) where there is change of use
 - a clear process, with fixed timetable, for more complex trades

Example of how process might work



Creating well-defined water rights

Policies for addressing unsustainable abstraction are often implemented in a way that means that water rights holders face significant uncertainty about the extent to which their rights may be subject to future reviews.

- Well defined property rights are essential to support the development of an efficient water markets.
- Furthermore, well-defined water rights (and the means to trade these rights) facilitate investment by increasing certainty.

Key characteristics of water rights

Clearly-specified	Owners and potential holders of water rights understand exactly what benefits and obligations the right brings.
Secure	The right is not subject to modifications or revocation at the discretion of others without due compensation.
Exclusive	The direct benefits and the costs associated with the use of the rights accrue to the holder.
Enforceable and enforced	It must be possible to determine when a right has been infringed and to have legal mechanisms for preventing or redressing this.
Transferability and divisibility	The right can be traded in whole or in part to others and is defined in a consistent manner. These are often listed as key characteristics for water rights in order to facilitate the development of water markets.

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Conclusions

It will become more important to have adaptable water management regimes, that facilitate efficient investment and allocation of water across users

- Market based approaches can perform better than administrative approaches
- Promotes reallocation to users that value water the most
- Promotes investment in infrastructure by protecting water rights
- Market based approaches need support and management by authorities
 - information sharing, creating visibility for participants
 - reducing transaction costs for trades
 - creating well-defined water rights



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