Urban Water Security Research Alliance

WHY GOOD WATER ACCOUNTING IS CRITICAL – *to economic decisions and modelling for sustainable water management*

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Life Cycle Assessment and Integrated Modelling

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Queensland Government

CSIRO

Griffith UNIVERSITY

The University Of Queensland AUSTRALIA

Presentation AIM

Reviews two reports …
(part of Griffith Uni component of LCA-IM Alliance project)

GENERAL AIM => analyse and enhance the potential systematic **water accounting** has for providing mission-critical data to support the ***SEQ Water Strategy***

MORE SPECIFICALLY => water account data support for the main **integrated urban water management model** in the Alliance research - i.e. **"Regional Urban Tool"** ***SEQ Regional Integrated Urban Water Management Tool***

Presentation STRUCTURE

we will overview :

1. *Griffith Uni /water accounting role in the Alliance*
2. *brief on why water accounting is critical for sustainable water management*
3. *overview the major water accounting frameworks under development – are 3 relevant to SEQ*
4. *some detail about our work linking water accounts to the SEQ integrated water model*
5. *water accounting benefits*
6. *next steps*

GRIFFITH UNIVERSITY ROLE

… is part of the Life Cycle Assessment and Integrated Modelling (LCA-IM) Project

- which aims to support the SEQ Water Strategy and associated water supply and demand management decision-making over the medium to long term

3 reports completed

- two on water accounts => integrated model

- one on virtual water and water accounting

2 more in process – (1) data gaps and (2) broader water accounts use in SEQ Water Strategy

GRIFFITH UNIVERSITY ROLE

GU team role is shifting to the environmental economic analysis of LCA and supply-demand options

=> i.e. costing of externalities associated with Strategy options

THE CONTRIBUTION OF WATER ACCOUNTS

Briefly on how water accounting can contribute to sustainable water policy in the region …

(i) the basis to assess the economic consequences of alternative water policy and management options
- links water to economic data

(ii) provides the data to accurately model future scenarios re the SEQ water balance

(iii) key data to assess and compare impacts of alternative strategic options

"we can't manage what we can't measure"

TRENDS IN WATER ACCOUNTING FRAMEWORKS

3 main levels

Queensland water Commission

QWC's Regional Water Information Program and *WaterHub* - SEQ

Australian Government
Bureau of Meteorology

BOM / NWC's - National Water Accounts and AWRIS - AUSTRALIA

UN's - System of Environmental-Economic Accounting for Water (SEEAW) – INTERNATIONAL

(Also ABS environmental accounts close)

WATER ACCOUNTING RESEARCH IN THE ALLIANCE – Focus to Date

Part of the LCA-IM project

- mainly focused upon the IM (integrated modelling) component's *regional-urban tool*

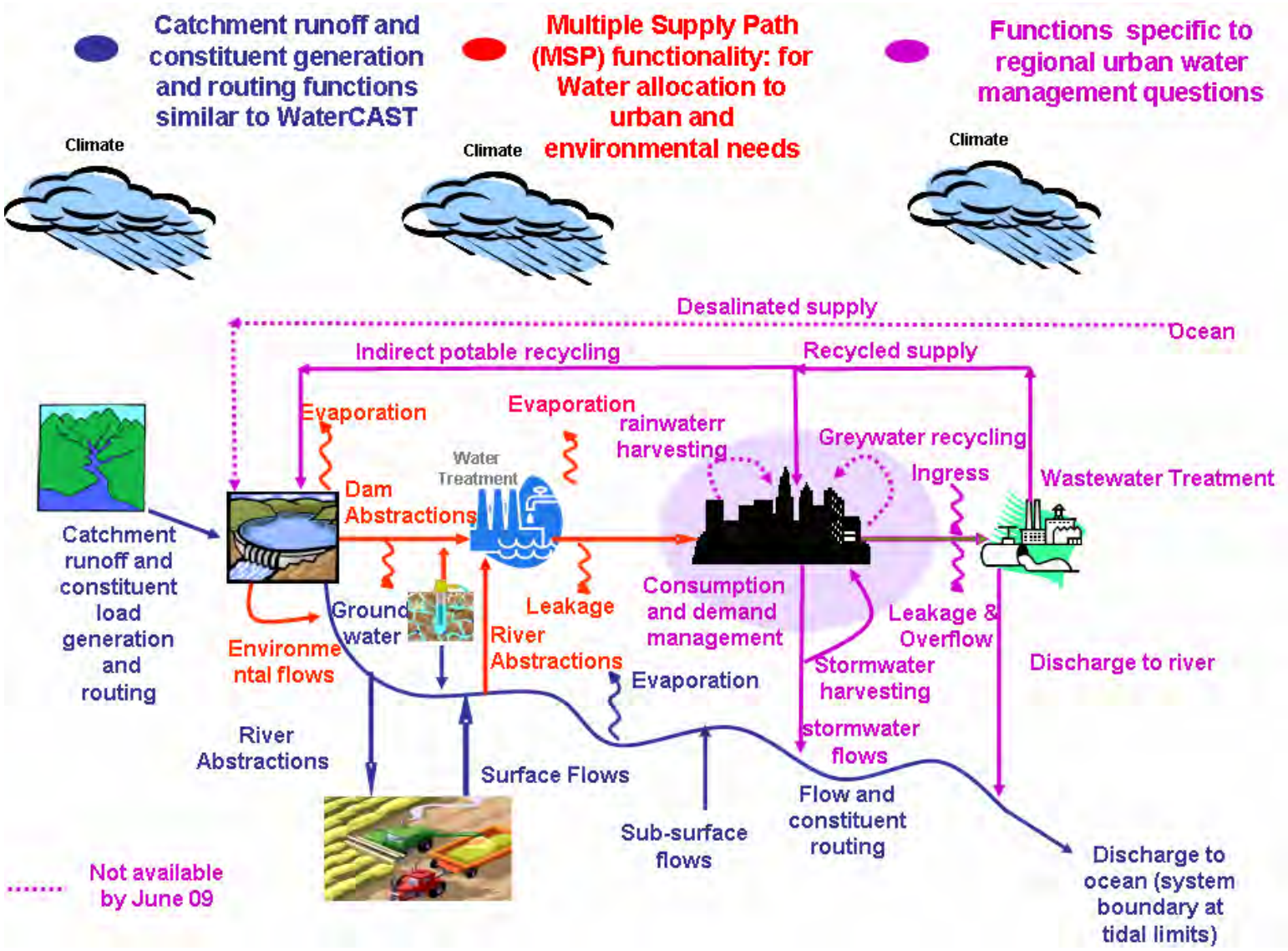
Water accounts are of marked relevance in many aspects of the Alliance work

WATER ACCOUNTING RESEARCH IN THE ALLIANCE – Focus to Date

The *Regional-Urban Tool*

- *aka* "SEQ Regional Integrated Urban Water Management Tool"

Regional Urban Tool : Key functionalities



ALLIANCE WATER ACCOUNTING RESEARCH

Matching the Regional-Urban Tool TO water account data

		ALLIANCE Regional Urban Tool NEEDS		WATER ACCOUNTING FRAMEWORK AVAILABILITY (SEQ WaterHub and BOM's *AWRIS*)			
Measurand	**Data Type**	**Priority** (H=high M=medium)	**Required Resolution:** S = SPATIAL T = TEMPORAL	**Available from:** WH /BOM	**Unit**	**Temporal Resolution**	**Spatial Resolution**
Total rainfall	**Climate**	**H**	**S :** **T :**	**WH**	Mm	Daily	for each station, all observations and the time of each observation
Accumulated precipitation depth	**Climate**	**H**	**S :** **T :**	**BOM**	Mm	Daily	for each station, all observations and the time of each observation
Average Maximum temperature	**Climate**	**H**		**WH**	degrees C	Daily	for each station, all observations and the time of each observation
Average Minimum temperature	**Climate**	**H**		**WH**	degrees C	Daily	for each station, all observations and the time of each observation
Evaporation data	**Climate**	**H**	**S :** **T :**	**WH**	mm	Daily	evaporation observing stations (see BOM website)

BENEFITS OF GOOD WATER ACCOUNTS – Some Detail

1. Integrated water management modelling

For the Alliance's model…

⇨ data inputs for decision variables and scenario formulation or specification

⇨ background hydrological-economic data for system conceptualisation

⇨ model structural identification

⇨ parameter estimation or calibration

⇨ ongoing model evaluation or validation

BENEFITS OF GOOD WATER ACCOUNTS – Some Detail

1. **Integrated water management modelling**

2. **Empirical basis for assessing water management options**

3. **Economic analysis of water policy**

   - if can link water to economic stats, facilitates least-cost, effective policy (incl. potential for full welfare effects)

BENEFITS OF GOOD WATER ACCOUNTS – Some Detail

4. **for the QWC's *Regional Water Info Program* (RWIP) and WaterHub**

   - efficient coordination in required planning data collection

5. **Are the broad basis for the success of the SEQ Water Strategy**

   - data access and gaps

NEXT STEPS – Alliance Water Accounting Work

1. Finalise data access report (Report 2)

   - what can be used for integrated models from existing or planned water accounts

2. How can water accounts be used or improved to best meet the objectives of the SEQ Water Strategy?

   - including economic and policy assessment consistency

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   - including economic and policy assessment consistency

CONCLUSION

Well-formed water accounts are critical for the analysis of water options, particularly if any economic criteria are to be considered.

Regional and national water data that are structured to match economic and hydrological modelling formats and requirements

=> will help meet the analysis needs of strategic water policy

Urban Water Security Research Alliance

THANK YOU

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