



CRC for
Water Sensitive Cities

2016-17 Tranche 2 Projects and Activities

28 April 2016



Australian Government
Department of Industry and Science

Business
Cooperative Research
Centres Programme

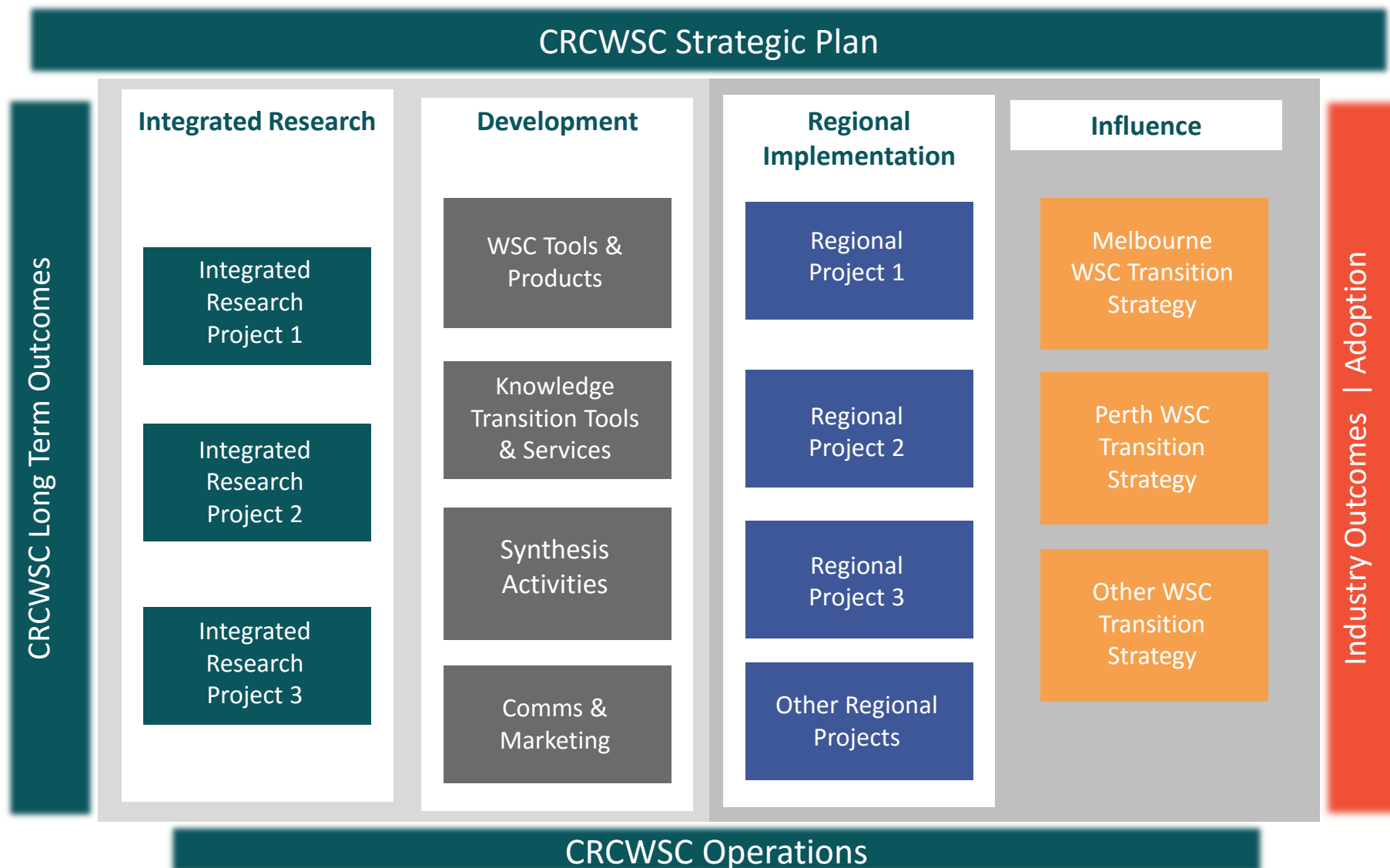
Key Activities for 2016/17

- Completing Tranche 1 projects
- Translating Tranche 1 research outputs into relevant knowledge tools (e.g. policy notes, case studies etc...)
- Initiating the first Tranche 2 projects and continue development of future projects/activities
- Testing and enhancing WSC Tools and Products (e.g. WSC Toolkit, WSC Index)
- Commence development of regional WSC Transition Strategies
- Evolution of the Regional Advisory Panels
- Continue research synthesis projects that establish the foundation for integrated, regional WSC solutions
- Transition of the CRCWSC's governance to support the transition and implementation of WSC outcomes

Tranche 2 Overall Framework

- To achieve both the long-term CRCWSC outcomes and the expected industry benefits/adoption, four Activity areas are proposed in the Tranche 2 period:
 - **Integrated Research** – addressing ongoing national research/application needs through key research projects jointly developed and executed between researchers and end-users
 - **Development** – capturing and translating existing knowledge and outputs from Tranche 1 into applicable tools, products and services
 - **Regional Implementation** – engaging with the RAPs/end-users to apply and adapt outcomes and tools/products from the research activities
 - **Influence** – home of the WSC Transition Strategy for each region (or part thereof), which are to be developed jointly with each RAP and should inform future policy and implementation activities.

Tranche 2 Overall Framework of Projects and Activities



Tranche 2 Project Types

- Four types of T2 Projects are proposed to be developed based on the RAP project ideas and the prioritised Research Activities.
- Project Teams are expected to comprise both industry and research partners.
 - **Integrated Research Projects (IRP)** – national projects addressing broad research needs; researcher lead with industry co-development
 - **WSC Tools & Products (TAP) Development Projects** – application focused, with potential commercial value, industry or researcher lead; examples include DAnCE4Water, Integrated WSC Toolkit, WSC Index, plus new tools/products
 - **Regional Projects (REG)** – regional focus, industry lead with transferability of outputs to other regions. Potential to have additional investment from local stakeholders
 - **WSC Transition Strategies** – developed through a national WSC Transition Strategy framework (part of IRPs), tailored to the local situation; local WSC Transition Strategies will be RAP led and managed by the Regional Manager

Priority Research Activities based on RAP feedback

		Rank order from RAPs											
		RAP	WA1	WA2	WA3	WA4	WA5	WA6	WA7	High VIC1	High VIC2/3	Low VIC4	High VIC5
	Research Activity (RA)	RA Title	Advancing the vision (Transition Strategy)	Knowledge broking and building capacity	Governance regulatory policy and delivery frameworks in WA	Local scale water supply and servicing	WSUD science in WA	Responsive Urban Form	Improved frameworks for evaluation of costs, risks and performance of water sensitive practices	Greening Bendigo (Regional City-based WSC)	Arden-McAulay Redevelopment/ Fisherman's Bend (Urban City-based WSC)	Sunbury Growth Corridor (Emerging City-based WSC)	Dandenong Catchment (Catchment-based WSC)
2	1.1	Enabling the development of water sensitive institutions			H								
1	1.2	Managing the risks of water sensitive innovation through a range of regulatory methods with pa										H1	
9	1.3	Developing community support for water sensitive innovation	H	H								H2	H2
6	1.4	Strategic policy influence for water sensitive cities	H		H								H1
3	1.5	Transition laboratories for water sensitive cities	H										
4	2.1	Operationalising Visions & Narrative through "joined up" planning and implementation process								H1			
6	2.2	Integrating WSC values across urban planning, urban design and implementation activities at su								H2			H3
1	2.3	Towards science informed planning and urban design for WSCs											
1	2.4	Integrating WSC principles, theory and lessons into core curriculum of Built Environment tertiary											
7	2.5	Operationalising and modelling urban water mass balance for strategic planning									H4	H4	H4
2	2.6	Co-designing water sensitive catchments and precincts											
4	3.1	In-fill developments								H3	H1		
3	3.2	Urban microclimate											
3	3.3	WSUD Groundwater Science				H	H	H					
3	3.4	Maintenance and sustainability of WSUD systems								H4	H3		
1	4.1	Science of selecting suitable surrogates and indicators for system validation										H3	
0	4.2	Utilising cheap, easy-to-use sensors and data analytics for efficient infrastructure monitoring											
1	4.3	Optimising the societal benefits of WSUD through social monitoring											
0	4.4	Monitoring and validation framework for assessing the multiple benefits of water infrastructure											
9	5.1	Economic values, evaluation and incentives	H						H		H2		
4	5.2	Evaluation to inform compelling narratives & decision-making											
2	5.3	Trusted and understandable evaluative criteria											
1	5.4	Envisioning and evaluating the resource performance of Water-Sensitive Cities											
0	6.1	WSC Index (not yet completed)											
0	6.2	WSC Integrated modelling (Toolkit) (not yet completed)											
2	6.3	DAnCE4Water - Modelling tools to support water sensitive planning											



Priority Research Activities based on RAP feedback

Rank order from RAPs			1	3	5	2	6	4	3 (32)	4 (27)	2 (35)	5 (25)	1 (38)	Medium-High	Low	High
RAP			QLD1	QLD2	QLD3	QLD4	QLD5	QLD6	NSW1	NSW2	NSW3	NSW4	NSW5	SA1	SA2	SA3
Count	Research Activity (RA)	RA Title	A transition plan for SEQ	Stormwater catchment management authority	UQ living and learning laboratory	Norman Creek catchment	Southbank precinct	Northern Tropics	Developing a common vision and narrative	Capacity building for Water Sensitive NSW	Uniting CRCWSC outputs and stakeholders for water sensitive outcomes	The regional context for the adoption and implementation WS Towns and Cities Principles	Enabling Integrated Water Cycle Management (IWCM) in Urban Infill and Land Release	Adelaide airport recycled water irrigation trial	Integrated water source networks	Greenhill Precinct
2	1.1	Enabling the development of water sensitive institutions						H4								
1	1.2	Managing the risks of water sensitive innovation through a range of regulatory methods with pa														
9	1.3	Developing community support for water sensitive innovation	H	H	H3			H1		H1						
6	1.4	Strategic policy influence for water sensitive cities		H					H							H1
3	1.5	Transition laboratories for water sensitive cities	H						H							
4	2.1	Operationalising Visions & Narrative through “joined up” planning and implementation processes									H2		H4			H2
6	2.2	Integrating WSC values across urban planning, urban design and implementation activities at su				H1		H3			H3	H				
1	2.3	Towards science informed planning and urban design for WSCs										H				
1	2.4	Integrating WSC principles, theory and lessons into core curriculum of Built Environment tertiary			H1											
7	2.5	Operationalising and modelling urban water mass balance for strategic planning			H3		H1						H3			H4
2	2.6	Co-designing water sensitive catchments and precincts						H2			H1					
4	3.1	In-fill developments			H2								H2			
3	3.2	Urban microclimate				H2	H4							H1		
3	3.3	WSUD Groundwater Science														
3	3.4	Maintenance and sustainability of WSUD systems		H												
1	4.1	Science of selecting suitable surrogates and indicators for system validation														
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1	4.3	Optimising the societal benefits of WSUD through social monitoring								H4						
0	4.4	Monitoring and validation framework for assessing the multiple benefits of water infrastructure														
9	5.1	Economic values, evaluation and incentives					H3			H2			H1	H2	H2	H3
4	5.2	Evaluation to inform compelling narratives & decision-making		H						H3	H4	H				
2	5.3	Trusted and understandable evaluative criteria				H3								H3		
1	5.4	Envisioning and evaluating the resource performance of Water-Sensitive Cities					H2									
0	6.1	WSC Index (not yet completed)														
0	6.2	WSC Integrated modelling (Toolkit) (not yet completed)														
2	6.3	DAnCE4Water - Modelling tools to support water sensitive planning														
						H4									H1	

Tranche 2 Project Development Priorities

Priorities of Research Activities based on RAP feedback

- Overall Priorities of Research Activities across most/all RAPs

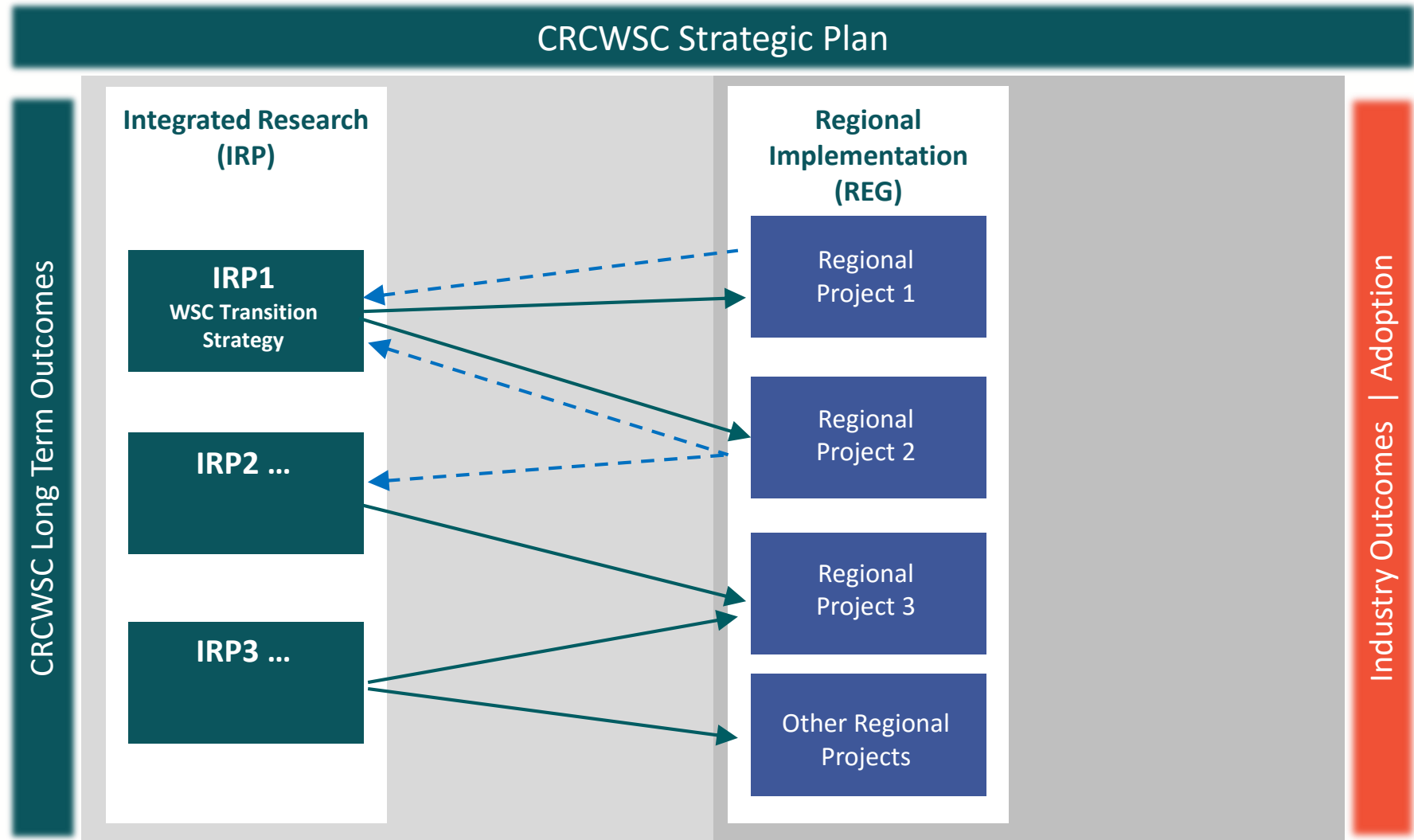
RAP Ranking* * from Combined RAP Priorities matrix	Research Activity No.	Title
Very high	1.3	Developing community support for water sensitive innovation
Very high	5.1	Economic values, evaluation and incentives
High	1.4	Strategic policy influence for water sensitive cities
High	2.2	Integrating WSC values across urban planning, urban design and implementation activities at sub-city scales
Medium	1.5	Transition laboratories for water sensitive cities
Medium	2.1	Operationalising Visions & Narrative through “joined up” planning and implementation processes
Medium	2.5	Operationalising and modelling urban water mass balance for strategic planning
Medium	3.1	In-fill developments
Medium	3.2	Urban microclimate

Tranche 2 Project Development Priorities

- Other identified Research Activities of importance to particular RAPs

RAP Ranking* <small>*from-Combined RAP Priorities matrix</small>	Research Activity No.	Title	RAP
High	3.3	WSUD Groundwater Science	WA
Medium/high	5.2	Evaluation to inform compelling narratives & decision-making – WSC Integrated Modelling	QLD & NSW
Medium/high	3.4	Maintenance and sustainability of WSUD systems	VIC & QLD
Medium/high	1.1	Enabling the development of water sensitive institutions	WA

Tranche 2 Project Linkages



Proposed Tranche 2 Integrated Research Projects (IRP)

Projects that will commence in 2016/17:

IRP1: WSC Transition Strategy and Implementation Plans

- **Aim:** Develop WSC Transition Strategies for each RAP region with strong alignment of vision and support across all relevant stakeholders
- **Output:** WSC Transition Strategies and Implementation Plans for each RAP region to outline shared pathway towards overall beneficial outcomes

IRP2: Comprehensive Economic Evaluation Framework

- **Aim:** Create an agreed evaluation framework to identify economic, environmental and community values of water-related investments
- **Output:** Accepted and aligned evaluation framework that is applied to business case development and decision making at multiple levels in public and private sector organisations

Proposed T2 Integrated Research Projects (IRP)

Project Proposals will be developed for the following projects in 2016/17 with expected start in early 2017/18 as related Tranche 1 activities are completed:

IRP3: Evidence-based integrated urban planning across different scales

- **Aim:** Enable integrated planning processes across different scales and jurisdictions utilising knowledge-based evidence as key input
- **Output:** Policy development and implementation framework that supports and demonstrates the application and value of evidence based integrated planning at different scales

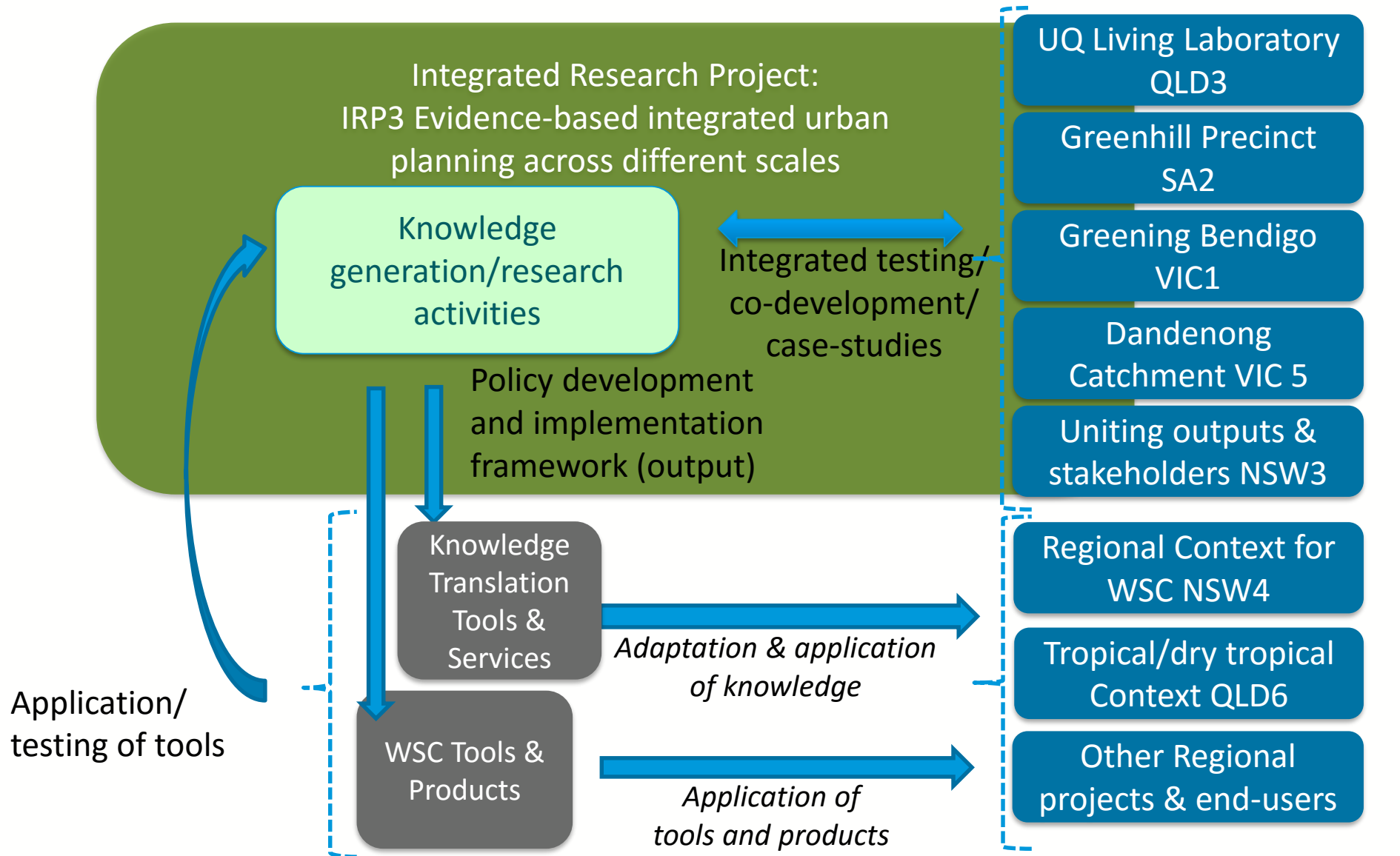
IRP4: Achieving WSC outcomes for in-fill developments

- **Aim:** Developing solutions that deliver overall beneficial WSC outcomes for in-fill developments at different scales
- **Output:** Innovative solutions and integrated strategies across policy, regulatory, financial, technology and community approaches to achieve positive WSC outcomes for in-fill developments

IRP5: Knowledge-based WSC solutions for groundwater impacted developments

- **Aim:** Understanding the impact and generating WSC solutions for developments in regions with high groundwater tables.
- **Output:** Guidelines and innovative solutions that achieve effective WSC outcomes for groundwater impacted developments

Example of Project Interactions



2016/17 Integrated Research Project (IRPs)

- WSC Transition Strategies (IRP1)
 - Project approved at August Board Meeting
 - Draft Transition Strategies completed by July 2017
- Economic Framework (IRP2)
 - Related Tranche 1 Projects will be completed by July 2016
 - Project approved at November 2016 Board meeting
 - Draft framework and tool by end 2017
- Remaining projects (IRP3, IRP4, IRP5)
 - Related Tranche 1 Projects will be completed by July 2017
 - Project Proposal developed during 2016/17
 - Projects approved at May 2017 Board meeting

2016/17 Activities of Tranche 1 Projects

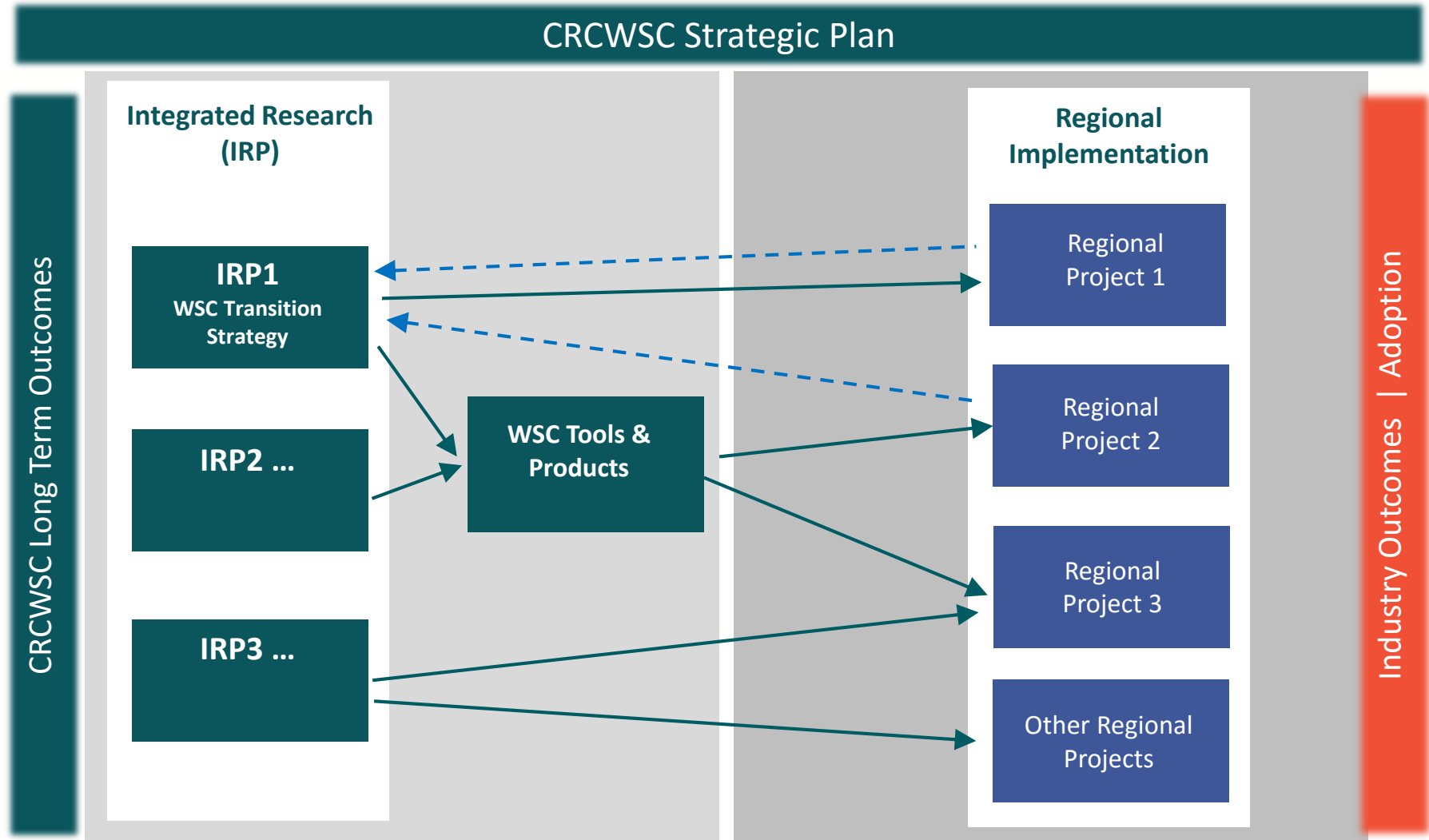
T1 project teams should assess opportunities for the application of Tranche 1 project outputs into the 'Project Ideas' identified by the RAPs and their potential transition into Tranche 2 projects

Tranche 1 Projects with significant continuing activities in 2016/17 are :

- A4.2 – Mapping WSC scenarios
- B1.2 – Catchment-scale landscape planning for WS Cities-regions
- B2.2/3 – Protection & restoration of urban freshwater ecosystems
- B4.1&B4.2 – Socio-technical flood resilience in Water Sensitive Cities
- C2.1 – Resource recovery from wastewater
- C3.1 – Managing interactions between decentralised & centralised water systems
- C4.1 – Integrated multi-functional urban water systems
- C5.1 – Intelligent urban water systems
- D5.1 – Urban intensification & green infrastructure towards a WSC

Total ongoing T1 project funding just over \$3M in 2016/17

WSC Tools and Products



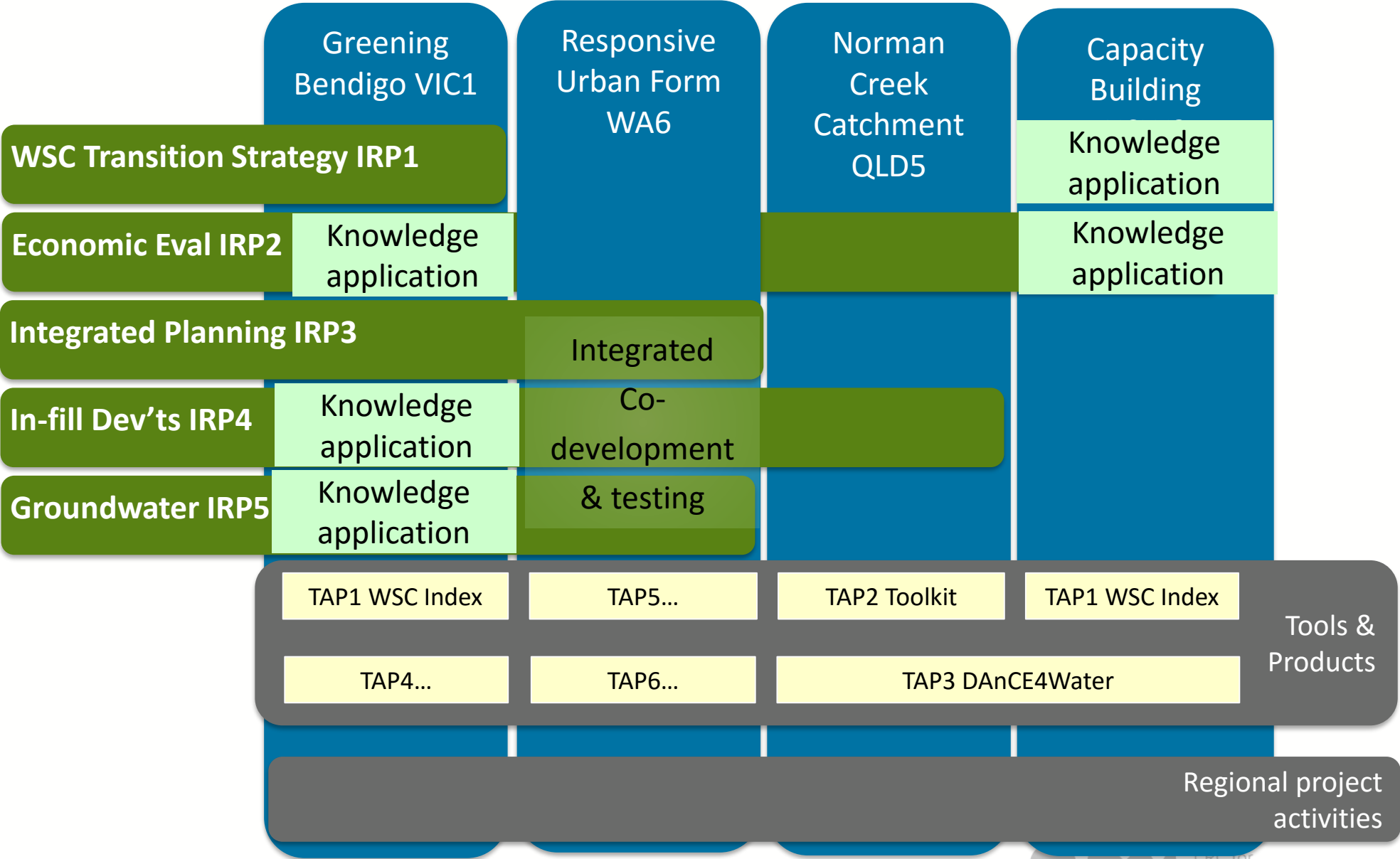
Proposed Tools and Products (TAP)

- This activity area and related projects will need to be further developed over the coming months, also in conjunction with the assessment of the Tranche 1 outcomes and how to further develop/translate/apply these.
- 2016/17 funding will complete the development of the following tools, including testing (and capacity building) in pilot projects and synthesis activities:
 - **WSC Index**
 - **WSC Toolkit**
- The following Tranche 1 Tools and Products will also be tested, during 2016/17, in projects and synthesis activities:
 - **DAnCE4Water modelling tool**
 - **Urban microclimate model**
- Other Tools and Products from Tranche 1 Project outputs will be further evaluated as they are completed over coming months.

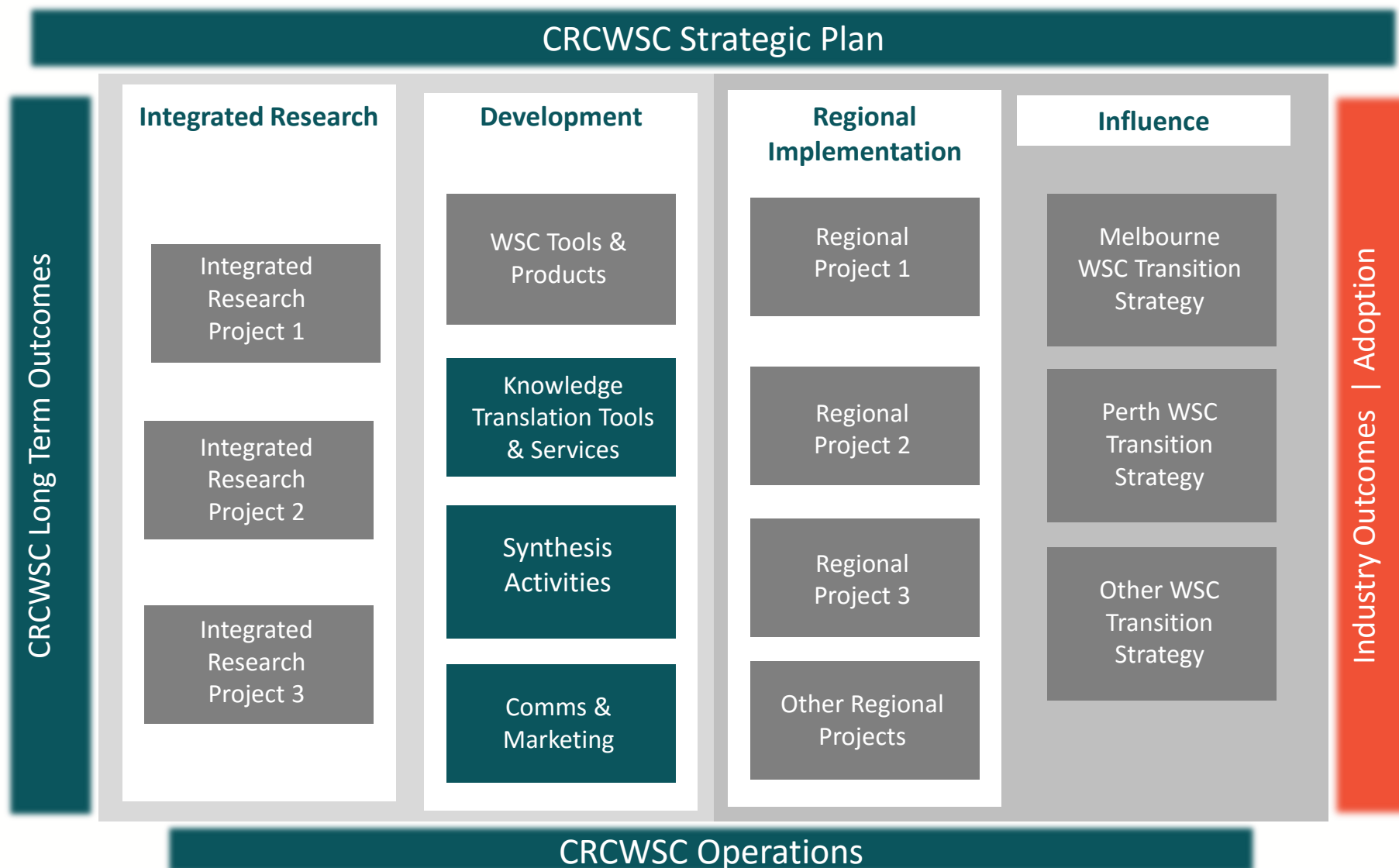
Regional Projects

- Based on specific, **local project idea or opportunity** proposed by one RAP;
- CRCWSC activities/outputs are expected to **add valuable knowledge and tools/solutions** to emerging or active projects driven by local stakeholders;
- **Transferability of outcomes** to other regions important, groups of related Regional Projects may be formed to foster shared application and adoption of knowledge;
- Some Regional Projects will have **significant interactions** with key research activities in the Integrated Research (IRP) projects, but not all REG project elements will be covered from these knowledge generation activities;
- The focus of non-research elements (ie. not covered in IRP projects) is primarily on **knowledge application and implementation**, including application of Tools and Products (TAP) as well as (ongoing) T1 activities/outputs to the particular local situation/needs;

Example of Integration of Regional Projects with IRPs and Tools&Products



Tranche 2 Activities



T1 & T2 Development Activities

Additional project types/activities that focus on the translation of the research and building the capacity of stakeholders. These activities may (or may not) provide commercial opportunities. These activities can be grouped as follows:

- **Knowledge Translation Tools & Services** – a range of support or enabling activities co-designed with industry including capacity building, knowledge resources, policy influence, knowledge dissemination etc..
- **Research Synthesis Projects** – both CRCWSC and partner funded knowledge sharing and integrating workshops that have the potential to provide foundations for on-going CRCWSC activities
- **Communications and Marketing** –multiple forms of communication (e.g. website, newsletters, Industry Partner Workshops, WSC Conference etc. used to inform and influence stakeholders on the products and tools of the CRCWSC and the value of WSC solutions

2016/17 Knowledge Translation Tools & Services

Capacity Building

- Collaboration and co-delivery between RAP and capacity building organisations and centers'
- Knowledge translation – guidelines, policy notes, case studies
- Demonstration projects and case studies
- Evaluation and learning framework

Policy influence

- Linking in with IRP1 – proactive support for key policy enhancement

Education and Training

- PhD support & capacity building
- PhD training/retreat
- Professional development and post-graduation education

Synthesis Activities

Five Partnership Workshops planned at least, including:

- Norman Creek (QLD)
- Bays Precinct (NSW)
- Arden Macaulay (VIC)
- Pinja South (WA)

Plus five 'Full Fee' Synthesis Workshops such as:

- Southbank (QLD)



CRC for
Water Sensitive Cities

2012 - 2021

