

Existing Modeling Programs: CMAS & WIRADA

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- Regulatory basis
- Function and role
- Collaborative structure
- Funding levels

Community Modeling & Analysis System

<http://www.cmascenter.org>

- CMAS supports air quality community model and associated tools – used for research and regulatory purposes to meet Clean Air Act
- Components include
 - CMAQ (Community Multi-scale Air Quality) model
 - SMOKE (Sparse Matrix Operator Kernel Emissions)
 - VERDI (Visualization Environment for Rich Data Interpretation)
 - BENMAP (Environmental Benefits Mapping & Analysis Program)
 - MCIP (Meteorology-Chemistry Interface Processor)

CMAS augments 6-7 FTEs for principal modelers + associated personnel at EPA ASMD, providing a critical component of the gradient from developers to users and outcomes

(<http://www.epa.gov/asmdnerl/ModelDevelopment>)

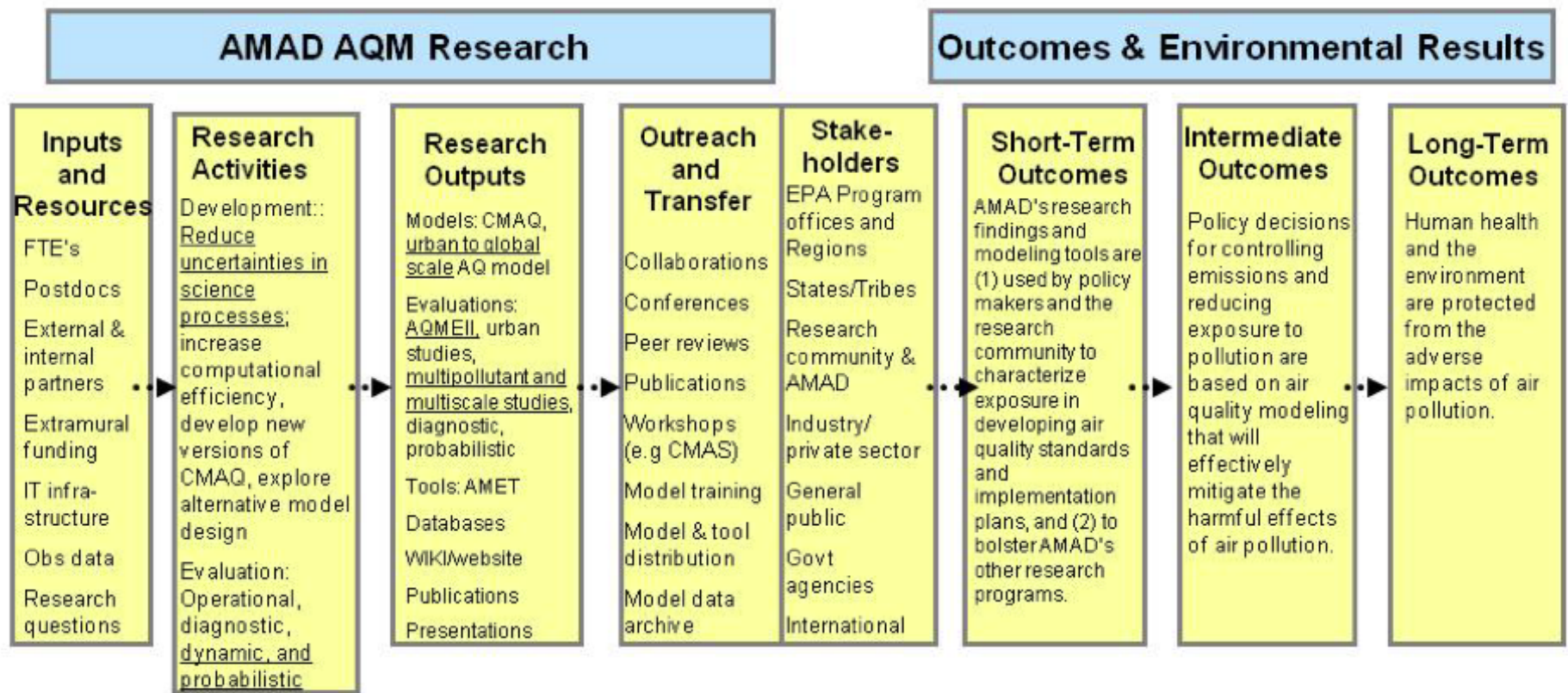
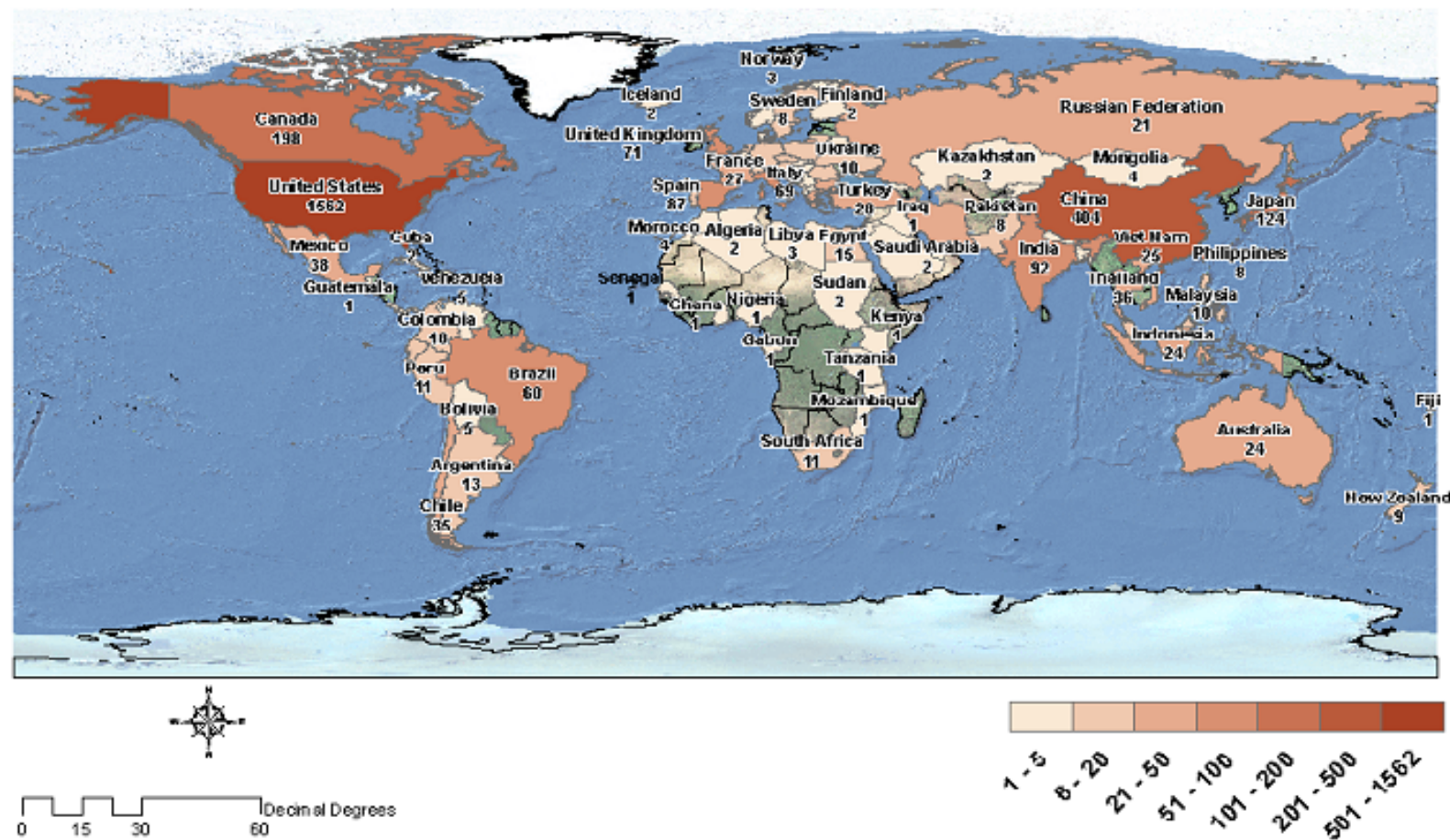


Figure 3-1. Logic model for core air quality modeling research on development and evaluation.

CMAS functions

- On-line help desk
- Software and data clearinghouse
- [Training](#) (UNC campus and elsewhere)
- [Conferences](#) (annual CMAQ Conference, UNC)
- Software documentation (new wiki)
- Software related research
- Model QA
- Model and utility reviews

Registered CMAS Users By Country (2008)



CMAAS Governance/Operation

- Contract from EPA Atmospheric Modeling and Analysis Division (formerly co-op agreement) with UNC Institute Environment
 - Base funding supports help desk, newsletters, notifications, some development, QA ... ~1-2 FTE
 - Additional work assignments from master agreement for additional needs (reviews, documentation, additional development, ...) ~3-4 additional FTE
 - Under former co-op agreement, external advisory committee (industry, agency, university, ...)
 - Training, conferences, other activity self supported



Australian Government
Bureau of Meteorology

National Research
FLAGSHIPS
Water for a Healthy Country



WIRADA IMPLEMENTATION STRATEGY (2010-2013)

CSIRO & Bureau of Meteorology

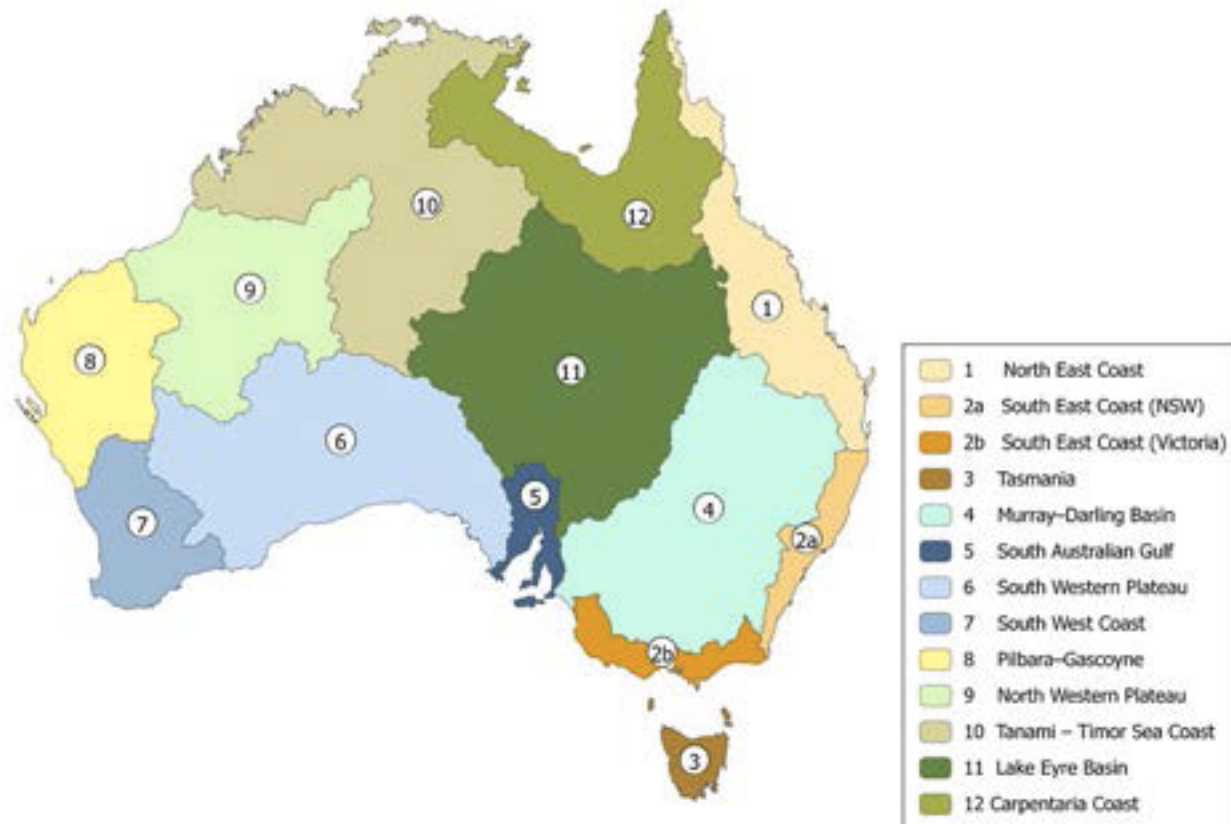
Water for a Healthy Country Flagship Report
Revised May 2011

***Water Information Research
and Development Alliance***
developed as a component
of ***Water for the Future***
initiative

In April 2008, the Australian Government announced *Water for the Future*, a \$12.9 billion national water investment program to address drought crisis.

- \$450 million for the '*Improving Water Information Program*' administered by the BOM and backed by the Commonwealth *Water Act 2007* and key stakeholders.
- Program includes the development and maintenance of an integrated, national water information system freely accessible to the public.
- Joint initiative—\$50m over five years—between the BOM's Water Division and CSIRO's Water for a Healthy Country Flagship to provide core research to support the BOM role as the national water information provider.

Goal of producing national system for water balance components over nested hydrologic regions, jurisdictional (States, cities, councils) and organizational water accounts -
water balance in real time, seasonal, annual, estimates of trends, forecasts to support management, allocation, trading, ...



Major hydrologic regions of Australia

Research (CSIRO) to Operation (BOM) to develop Water Assessments (current water balance state and trends) and National Water Account (stores, flows, rights, use) to support water allocation, innovative water management

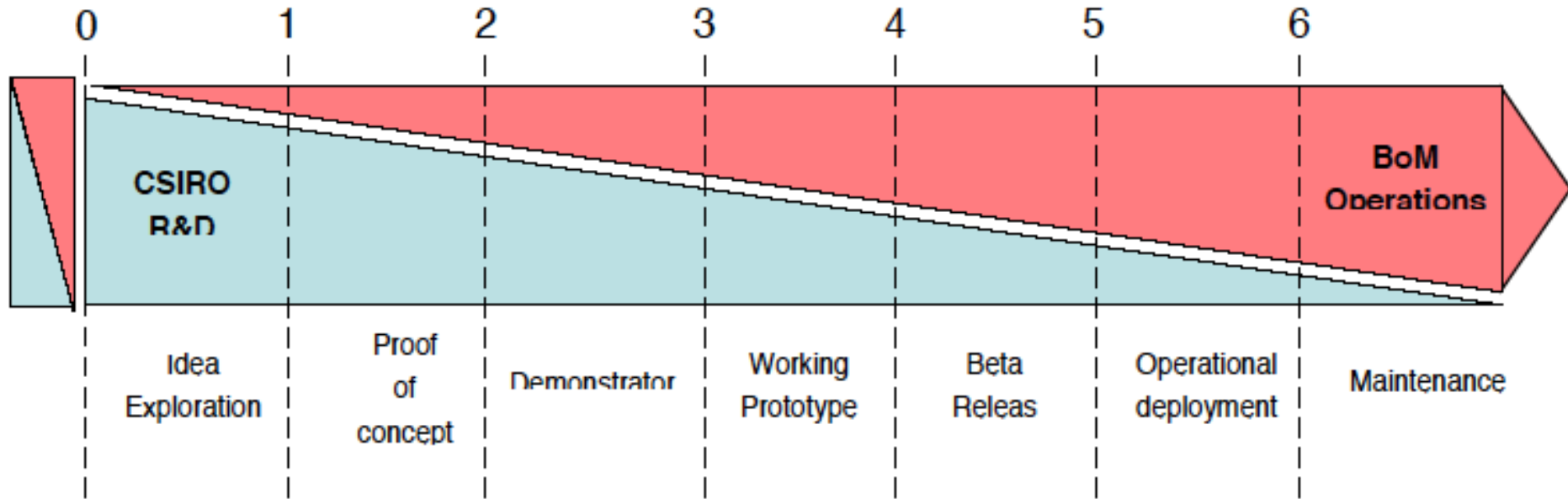
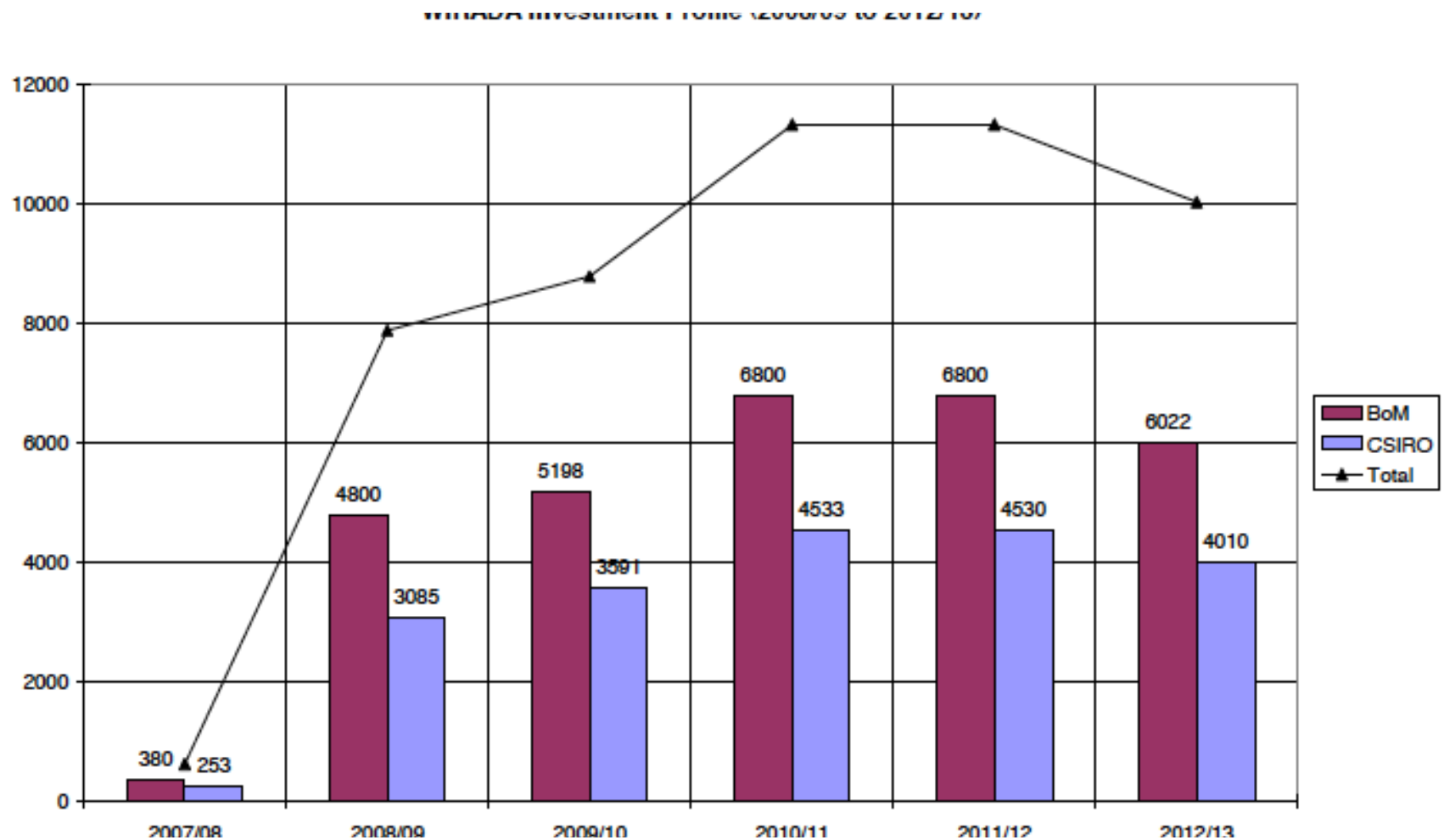


Figure 3 Research to product life cycle

Major development effort of parallel research system (CSIRO AWRA) and operational system (BOM AWRA)

<http://www.bom.gov.au/water/about/waterResearch/wirada.shtml>

Rapid ramp-up in funding between BOM, CSIRO



Overview of Australian Water Resources

Assessment system development:

DELFT FEWS framework for research and operational system

