Research Program on Water, Land and Ecosystems

CGIAR

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

sustainable solutions for ending hunger and poverty

IFPRI

Overview of IFPRI Water Research, CGIAR Water Land and Ecosystems Program and Key Research Ideas/Activities

10th GWSP SSC Meeting

Oct 1-3, 2012

IFPRI Water Research Areas

1. Water sustainability & food security

- **Economic impact, investment, growth**
  - Water and growth
  - Economic impacts of water scarcity
  - **Investments in water (public/private)**
- **Water and climate change linkages:**
  - Climate change impacts on water supply
  - Adaptation to climate change
- **Water quality impacts of agricultural intensification**
- **Water and energy**
- Water management and ecosystem health

IFPRI Water Research Areas

2. Governance structures, policies & institutions for water management

- **Incentives for better water management** (links to economics, conflict, and climate change)
- **Managing water transfers between sectors**
- **Property rights for land and water allocation**
- **Groundwater management**
- Managing water to avoid conflict

IFPRI Water Research Areas

3. Water, gender, and health

- **Gender implications of multiple use systems**
- **Implications of water access (or lack of) and management for women**
- Water management and water borne diseases
- Rural water quality management
- Gender and climate change: impacts and adaptation

To what extent can increased water productivity affect economic growth?

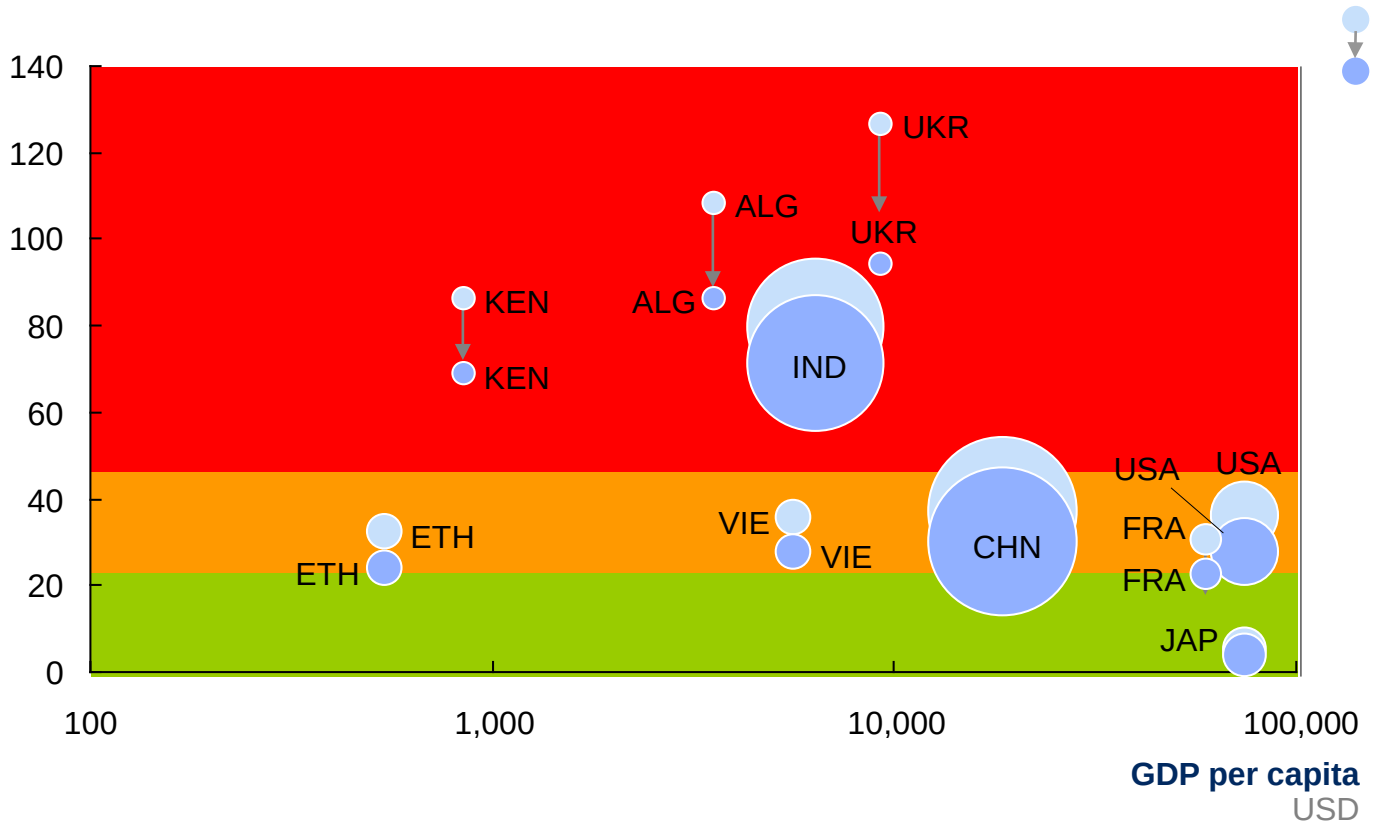
Size of bubble reflects size of population

- 0 - 20%
- 20 - 40%
- > 40%

Medium growth

Water stress by country over GDP per capita[1]

Percent



By growing blue 70% of economies, including China, US, France, etc. can stay below the 40%-scarcity threshold

1 Year 2000 prices

SOURCE: IFPRI; team analysis

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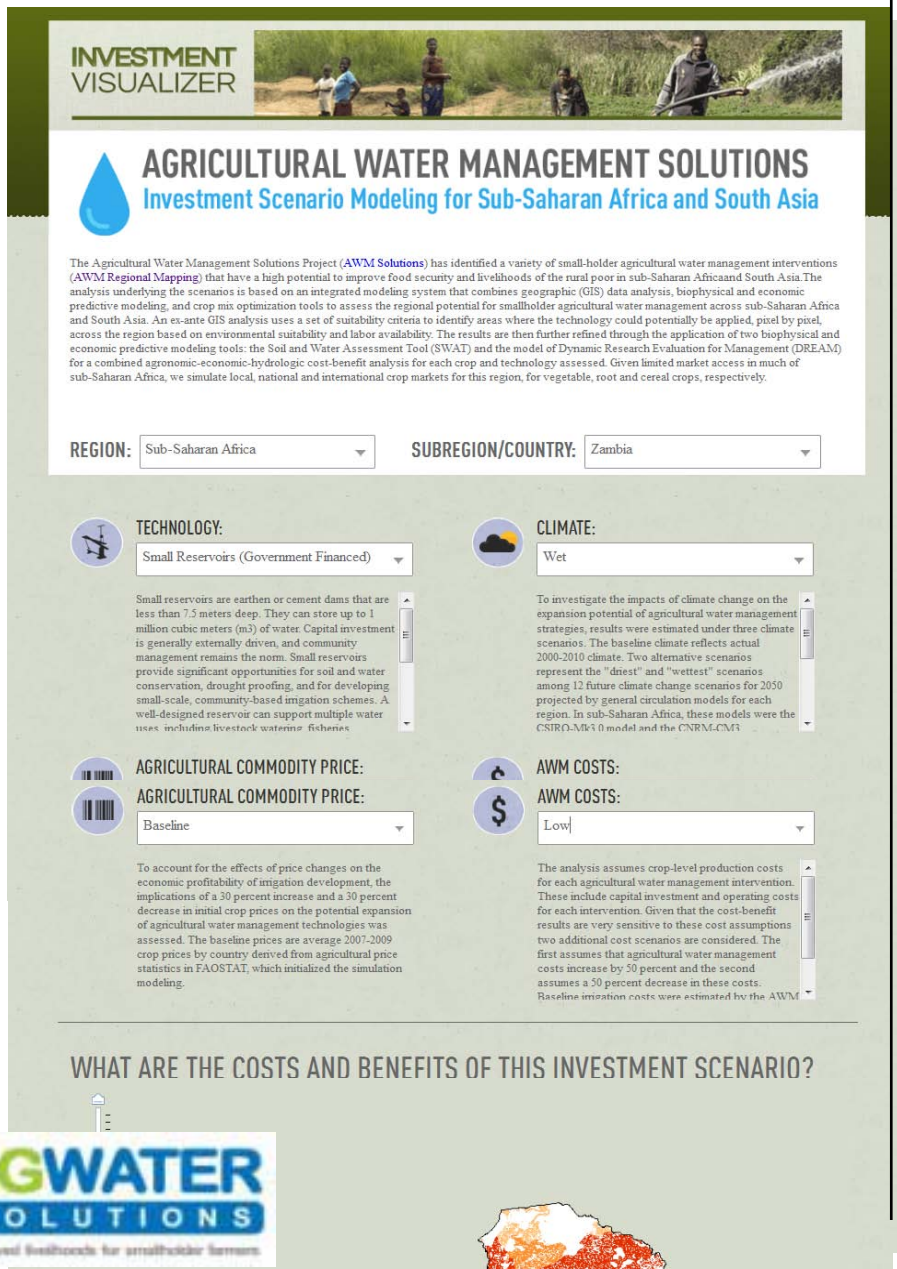
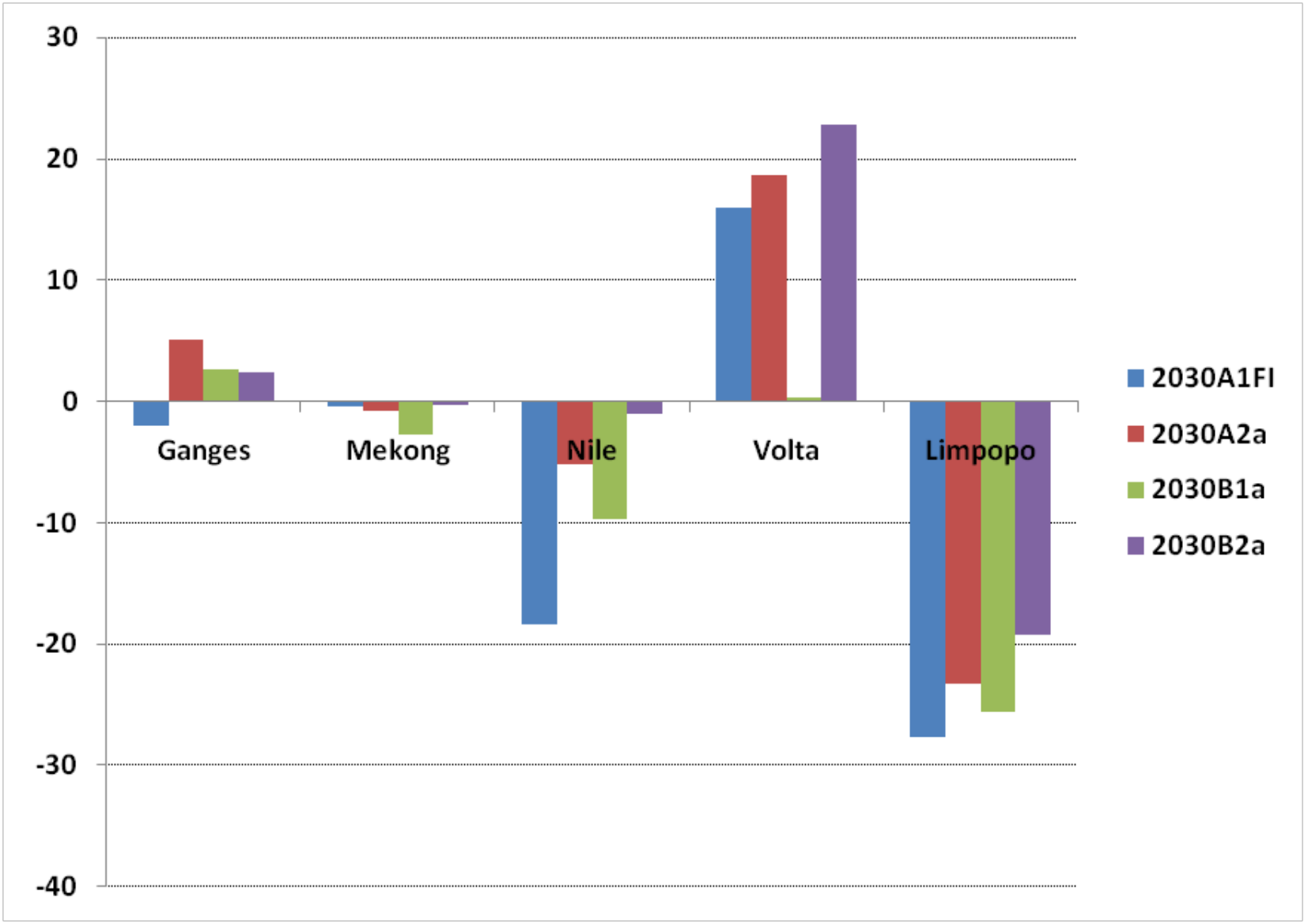
Interactive AWM Solutions Investment Scenario tool

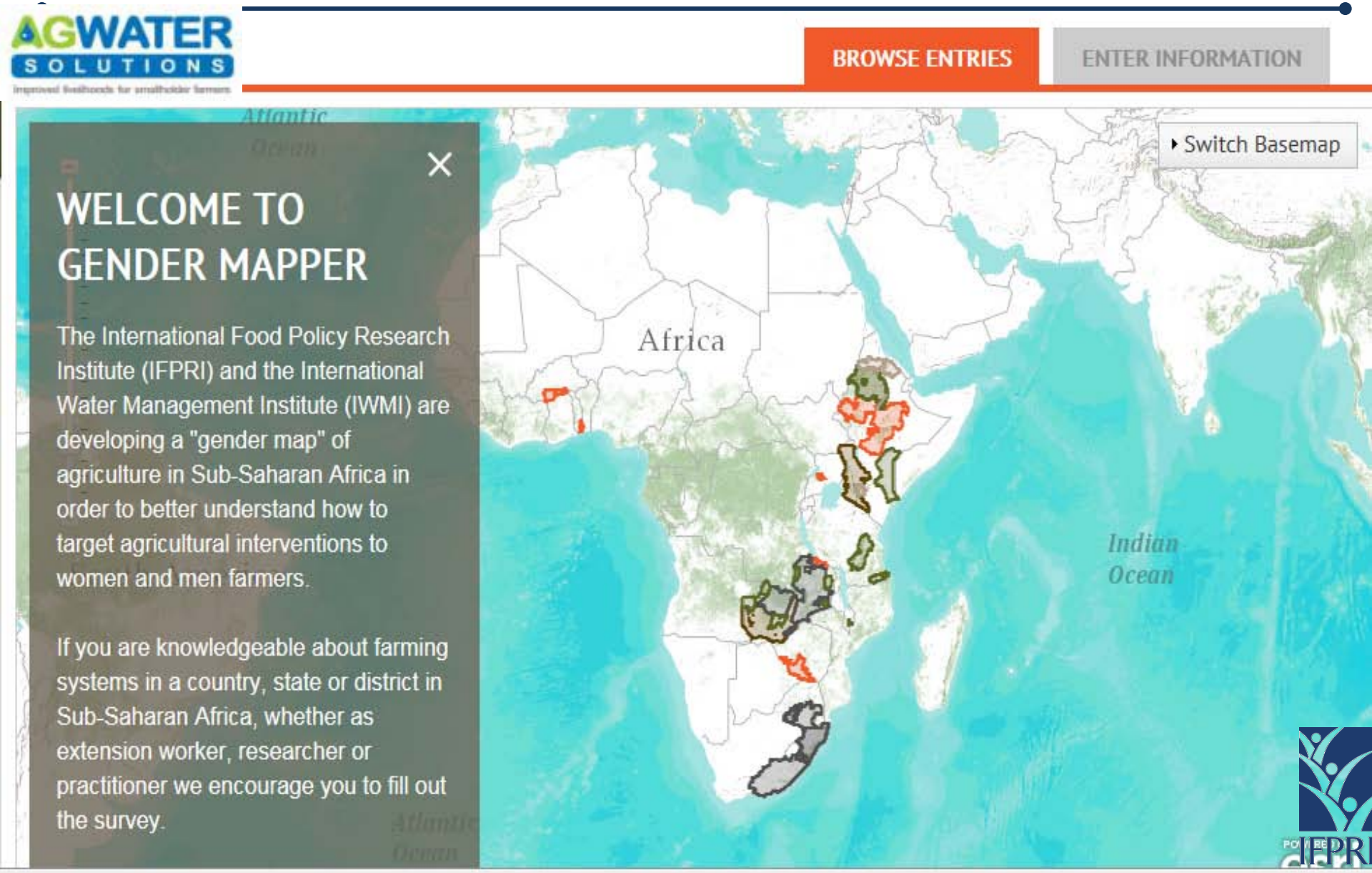
http://ferb.harvestchoice.org



Climate Change and Water Interactions--Changes of Annual Runoff by 2030 (%) (HadCM3)



Gendered Farming system map for Sub-Saharan Africa http://gender.mappr.info/



IFPRI Ongoing/Planned Work

- Assess the impact of N, P and BOD from crop, livestock, industrial production and domestic water use on water quality by country and large river basin
- Assess energy and water linkages (water implications of generating energy from HP versus biofuels use, f.ex.)
- Update of 2002 global water and food book
- Impact of CC on irrigation possibilities in Africa
- Climate-extreme events—impacts on water and food security

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Improved natural resources management for food security and livelihoods

A vision for WLE

http://wle.cgiar.org

Lead: IWMI under Simon Cook
s.cook@cgiar.org

Photo: Prue Loney/IWMI

CGIAR re-visiting basic goals

Rural poverty
- 1.4 bn on < $1.25 a day
- 70% in rural areas
- 80% depend on agriculture

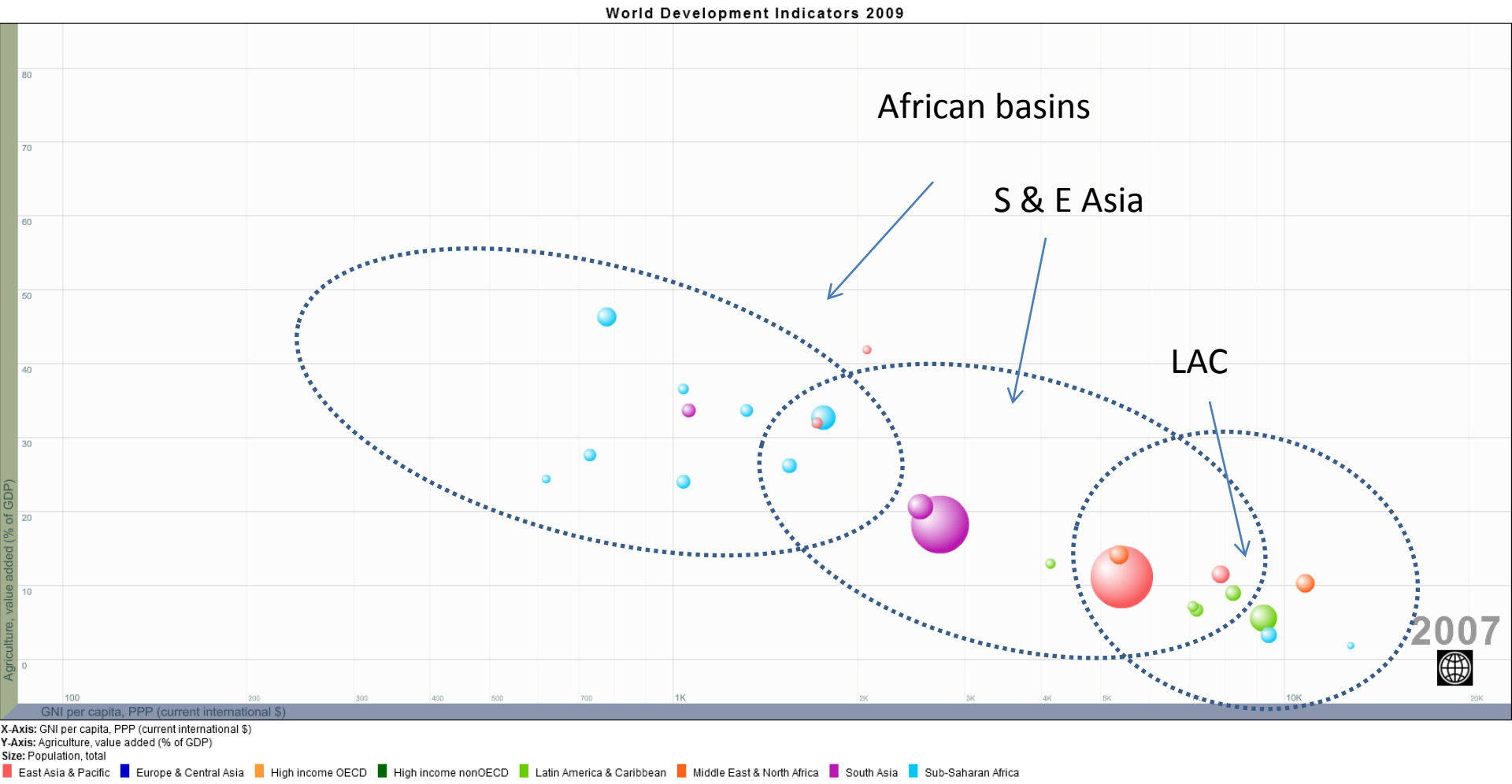
Food security
- Over 1 bn. food insecure
- 2009 food spike made a further 100m insecure
- Agriculture not keeping pace

Nutrition
- 2 bn. lack a diet necessary for healthy growth
- Chronic malnutrition impacts on other MDGs

Environment
- The 'Perfect storm' : food & water scarcity and GCC
- Planetary tipping points

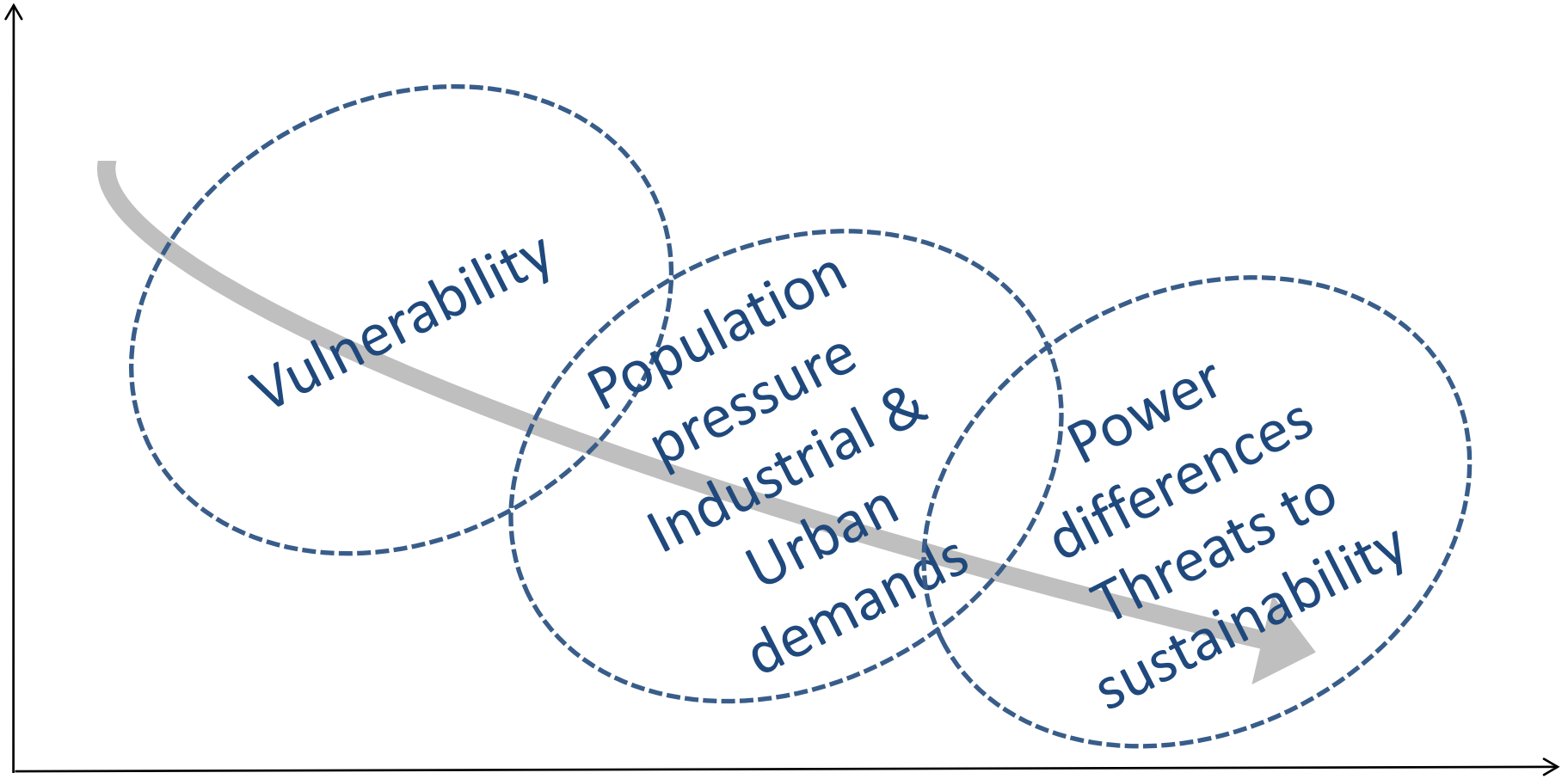
A development process…

Agriculture contribution to GDP (%)

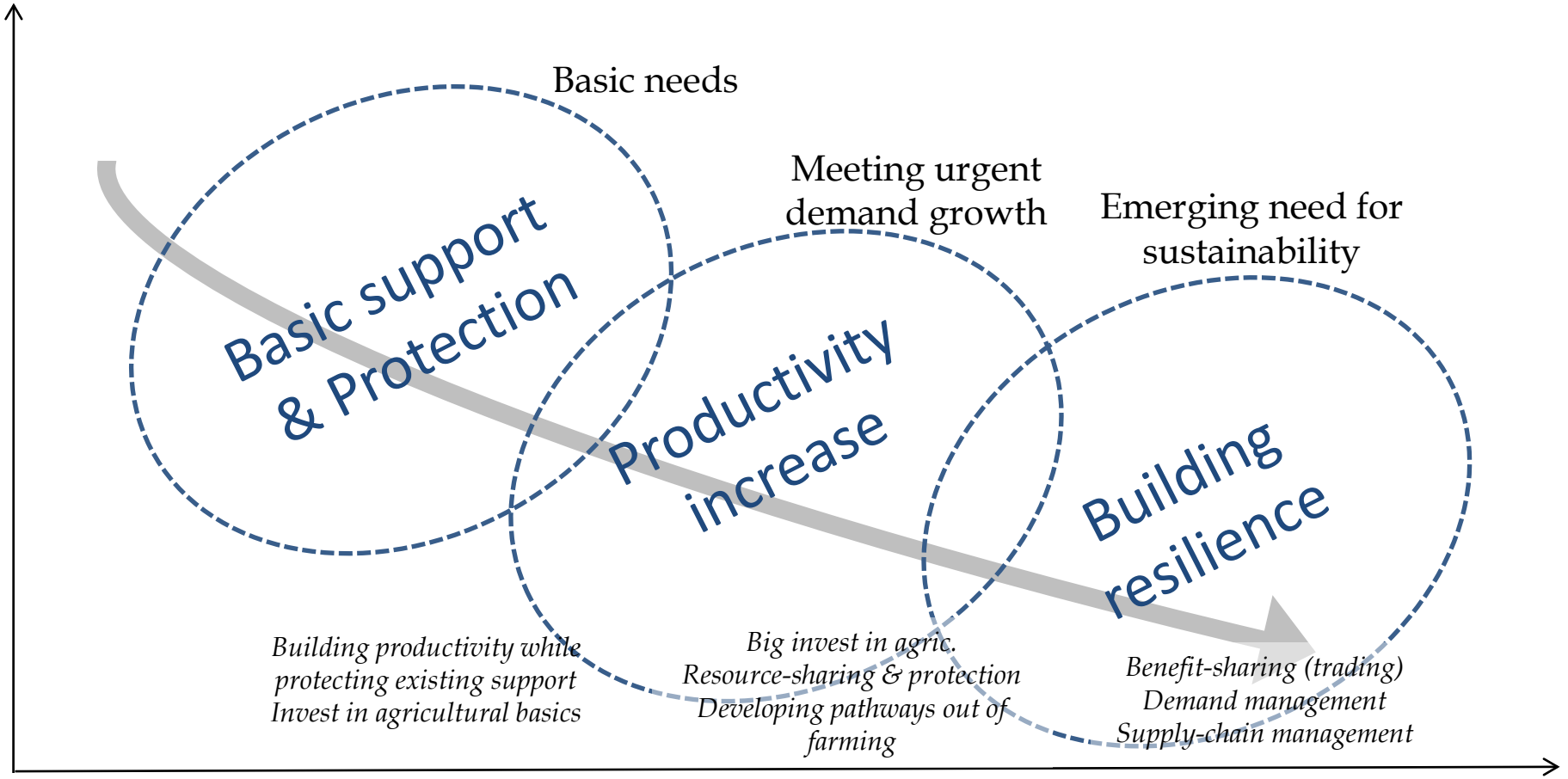


Gross National Income

..that creates problems …



...but also has the capacity to solve...



A program of Strategic Research Portfolios (SRPs)….

1. Irrigated Systems
2. Rainfed Systems
3. Resource Recovery and Reuse
4. River Basins
5. Information Systems

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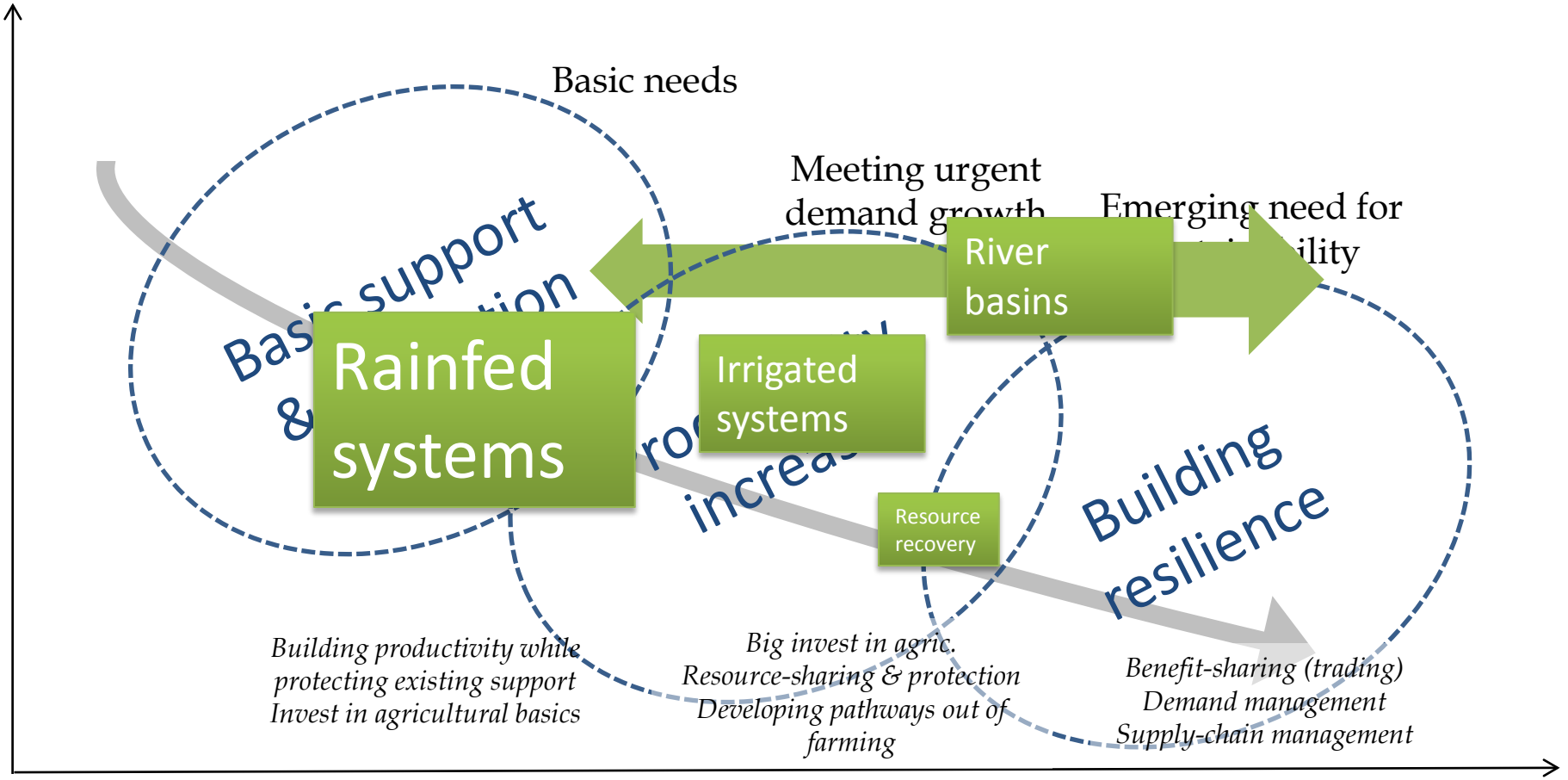
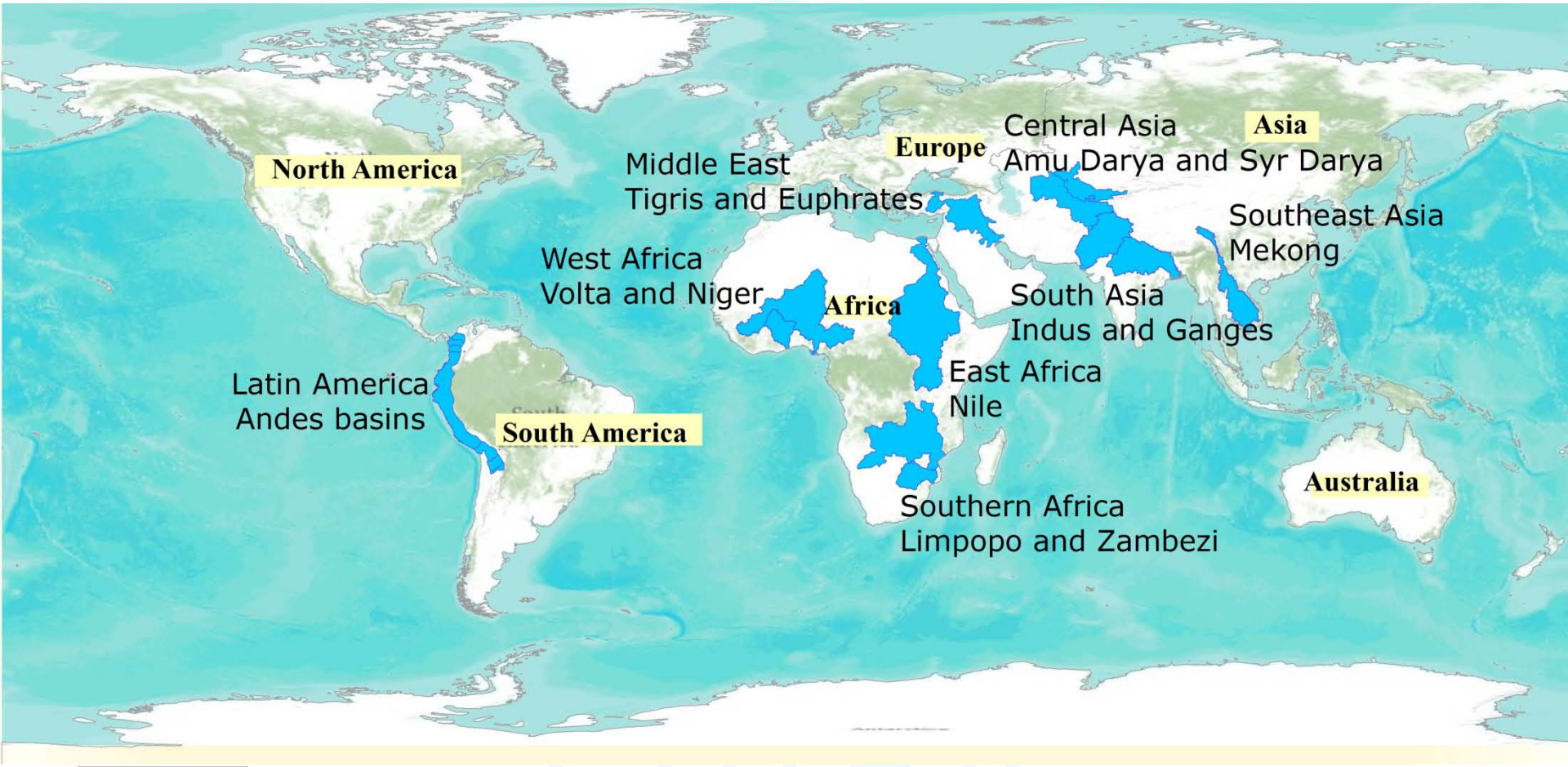
…mainstreamed into development processes



…focusing initially on ‘known‘areas



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Research to support 3 broad types of change

Irrigated Systems SRP (Sanmugam Prathapar)

Photo: Tom Van Cakenberghe/IWMI

- Irrigation for Food, Financial, Environmental and Nutrition Security in Sub-Saharan Africa
- Improving adequacy, reliability and equity of water for food security and poverty alleviation in Asian canal systems
- Managing water resources to unleash the agricultural potential and alleviate poverty in the Eastern Gang Plains

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Basin SRP (Vladimir Smakhtin & Claudia Ringler)

- Managing water resources' variability and re-thinking storage in basins for enhanced food and livelihoods security
- Sustainable, efficient, and equitable allocation of water, land and energy resources and their benefits in river basins
- Water-energy-land-food nexus

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Information SRP (Keith Shepherd)

- Decision Analysis — identifying high value information needs for revitalizing agriculture, supporting ecosystems and improving livelihoods (IWMI)
- Agro-ecosystem health metrics and monitoring
- Data service, f.ex. closing the water balance through space

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