IWMI Strategy for Central Asia

CGIAR Regional Program for Sustainable Agricultural Development in Central Asia and the Caucasus.

16th Steering Committee Meeting

Jeremy Bird, IWMI
**Vision:** A water-secure world

**Mission:** To provide evidence-based solutions to sustainably manage water and land resources for food security, people’s livelihoods and the environment

**Four imperatives have defined IWMI’s mandate:**
- Improving food security
- Eradicating persistent poverty and inequity
- Improving resource-use efficiency
- Reversing the degradation and unsustainable use of natural resources
Vision: A water-secure world

Mission: To provide evidence-based solutions to sustainably manage water and land resources for food security, people’s livelihoods and the environment.
Implications for IWMI’s draft Central Asia Strategy

Addressing water needs to meet food demand
• Increasing productivity of water use including conjunctive use
• Reducing energy demand and alternative energy options
• Understanding the role of ecosystem services

Competition and trade-offs between sectors and across region
• Scenario development – storage options, crop patterns….
• Managed aquifer recharge - pilots and upscaling

Salinization and waterlogging of irrigated land
• GIS Mapping, predictions
• Understanding linkages between surface and groundwater
• On farm and main system management – closed systems?

Climate change research
• Understanding future climate scenarios
• Implications for irrigation systems
• Adapting to extreme events
Rationale for IWMI’s studies in Central Asia: development priorities

- Population doubled since 1980
- Increased competition for water for food, energy and the environment
- Emergence of five independent states and ongoing reforms
- Extensive degraded land and ecosystems
- Need for innovation to revitalize irrigation systems
- Climate change – supply concerns and extremes

<table>
<thead>
<tr>
<th>Country</th>
<th>Population below poverty line</th>
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<tbody>
<tr>
<td>Kazakhstan</td>
<td>8.2%</td>
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<tr>
<td>Kyrgyzstan</td>
<td>33.7%</td>
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<tr>
<td>Tajikistan</td>
<td>46.7%</td>
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<td>Turkmenistan</td>
<td>30.0%</td>
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<tr>
<td>Uzbekistan</td>
<td>26.0%</td>
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</table>

High poverty level

Degraded infrastructure

Salinized irrigated land

Change in the area of Fedchenko glacier (cm/day)
Opportunities for IWMI to contribute

- Improved water use accounting
- Higher water and energy productivity – the nexus
- Revitalization of irrigation and salinity control
- Improved IWRM in small transboundary river basins and transboundary groundwater governance
- Adaptation to climate change
- Sustaining the contribution of water ecosystems (rivers, deltas, closed lakes)

Irrigated area mapping using remote sensing

Mapping salt-affected irrigated land, Syrdarya Province, Uzbekistan
Linkages between CGIAR Research Programs (CRPs) and potential donors in Central Asia

- UNESCO
- OFID
- USAID, SDC
- NGOs, Finland

**WLE**
- IWRM, basin planning, Groundwater Governance
- Water-energy nexus
- Revitalization irrigation - salinity control
- Water accounting
- Sustaining ecosystems

**Drylands CRP**
- Climate change

**CCAFS**
- Institutional reforms

**Kazakh Government**
Key partners

- Ministries of water resources, agriculture and environment of the Central Asian states
- Committees of geology of the Central Asian states
- National research institutes
- CGIAR and non-CGIAR centers
- International Fund for Saving the Aral Sea
- NGOs

Key products (physical and ‘soft’ products)

- Water management models as tools for decision makers
- Water and land use database
- Policy-related roundtables
- Contributions to development of institutions (laws, WUAs)
- Portal containing > 800 documents on managing small transboundary tributaries
- Impact assessment tools
- Papers, IWMI Research Reports, Policy Briefs
- Networking/Partnership
Potential outcomes/ impacts

- Knowledge generated on water-land-energy-environment nexus and water-use accounting
- Institutional reforms tested and up-scaled
- ‘Bright spots’ disseminated
- Adaptation strategies influence government policy
- Capacities of local partners strengthened
- Portal containing details of small transboundary tributaries hosted

What is new? (research/geographies)

- New vision on food-energy-environment nexus in Central Asia – integration of needs based on water and energy productivity
- Groundwater irrigation and Managed Aquifer Recharge
- IWMI’s broader geographic coverage in Central Asia
IWMI’s role and approach

- Strong partners across Central Asia provide a good platform for IWMI to engage
- Cross scale approach and learning from filed to project, national and regional levels
- Increasing emphasis on policy outcomes, particularly at national level
- Evaluation of regional benefits/opportunities covering national-scale interventions and region-wide strategies
## 2014 WLE activities in Central Asia (Amu Darya and Syr Darya)

<table>
<thead>
<tr>
<th>Center</th>
<th>Project</th>
<th>KAZ</th>
<th>KYR</th>
<th>TAJ</th>
<th>UZB</th>
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<tbody>
<tr>
<td>Bioversity</td>
<td>Agricultural biodiversity to improve ecosystem services in water-scarce environments</td>
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<td>Contributing to the resilience of agricultural landscapes through improved seed systems</td>
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<td>Front-loading ecosystem services and resilience in WLE</td>
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<td>ICARDA</td>
<td>Valuation of ecosystem services for improving agricultural water management</td>
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<td>Towards salinity management framework</td>
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<td>IWMI</td>
<td>Salinity management in Central Asia and Pakistan</td>
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<td></td>
<td>Managed Aquifer Recharge in the Syrdarya River Basin - upscaling opportunities</td>
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<td>Improving water management in lift irrigation areas of the Central Asia and Southeast Asia</td>
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<td>Transboundary water management: Cooperation triggers and performance benchmarks</td>
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<td>Basin books</td>
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## Planned uptake events in 2015

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<th>Issues/priorities</th>
<th>Research responses/activities</th>
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<th>KYR</th>
<th>TAJ</th>
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<tr>
<td>1. Increasing food production in the region</td>
<td>Improving water and energy productivity</td>
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<td>Improving water-use efficiency</td>
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<td>2. Competition for water between upstream hydropower and downstream agriculture / environment</td>
<td>Managed Aquifer Recharge</td>
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<td>Water cooperation</td>
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<td>Ecosystem services from infrastructure</td>
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<td>3. Salinization and waterlogging of the irrigated land</td>
<td>Salinity mapping</td>
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<td>Salinity management</td>
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<td>4. Climate change</td>
<td>Impact of climate change on crop evapotranspiration</td>
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<td>Capacity building</td>
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The ‘bright spot’: Licorice production on abandoned soils

Reclaimed land

Roots of licorice

Fodder from abandoned lands

Novbahor farm (4 ha)

Farm, 1999-2004

Farmers’ Alliance, 2005-2009

Factory - extract from 6,000 t of licorice roots/year, 2013

500 ha of abandoned land under shift to licorice

100 ha of abandoned land
Managed Aquifer Recharge in Central Asia

Changes in the river flow regime

Store excessive flows underground

Water-saving technologies - potential for drip irrigation

Recover for irrigation - Conjunctive use potential 530,000ha
Thank You

www.iwmi.org
http://wle.cgiar.org/