



2nd Asian Irrigation Forum

17-19 November 2015 • Asian Development Bank, Manila, Philippines

Securing Water and Food for the Future

I. Background

1. Asia is the world's most dynamic region with fastest economic growth - yet 37 of 49 countries (assessed by ADB) are water insecure.¹ If left unmanaged, this poses a real threat to continued growth and prosperity. Global water demand is projected to increase by some 55%, due to growing demand from manufacturing thermal electricity generation and domestic use.² The irrigation subsector constitutes about 80% of the demand for freshwater in Asia. Yet in the face of these competing demands, agriculture will need to produce 60% more food globally by 2050, and 100% more in developing countries using diminishing water resources.³

2. By 2050, more than 60% of the region's population will be living in cities. An increasing population, regardless of being urban or rural, will require more food. As populations prosper, diets will become more protein-based, requiring additional water for production. The demand for water from other users, including the environment, is also increasing. In the face of these competing demands, increasing clarity on the contributions of the irrigation sector to shifting national food security strategies and efficient, productive and modern irrigation are critical to achieving the region's food and water security agenda.

3. There are two complex transitions facing the agriculture sector.⁴ Firstly, structural transformation due to changing demographics leading farmers and irrigation managers, and their future generations, to leave agriculture for improved income and livelihood opportunities elsewhere. As men are more likely to leave agricultural work and seek improved incomes, the role of women in agriculture becomes increasingly important. Feminization of agriculture and its significance for water and food security is still largely unrecognized. More generally, meeting farmers' socio-economic aspirations becomes a central policy question. Secondly, the anticipated impacts of climate change and natural resource degradation require more sustainable and resilient agriculture to support production requirements.

4. Irrigation infrastructure and management requires substantial reinvigoration to meet these challenges. There is a large backlog for replacement and rehabilitation of ageing infrastructure and the adaptation of existing infrastructure for future changes in climate, water availability and water services demand. Coupled with this are actions that can reduce investment costs like operation and maintenance and demand management. In 2010, ADB estimated that developing Asian countries have an infrastructure requirement of about \$8 trillion over the ten years to 2020.⁵ Whilst the bulk is for roads and energy (about \$6.7 trillion), the missing link is to quantify the magnitude of investments required to modernize irrigation.

¹ Asian Water Development Outlook 2013, Asian Development Bank

² Environmental Outlook to 2050: The Consequences of Inaction, Organization for Economic Cooperation and Development, 2012

³ World Agriculture Towards 2030/2050, The 2012 Revision, ESA Working Paper No. 12-03 June 2012, Food and Agriculture Organization

⁴ Water and Food Security in The Asia-Pacific Region, FAO (2015)

⁵ Infrastructure for a Seamless Asia, ADB ADBI (2009)



5. Investments for water and food security in Asia-Pacific region and providing farmers and farming communities with a viable economic future will require: (i) a new paradigm for irrigation and drainage under a long-term vision to boost water productivity and managing changing dynamics within the water-energy-food nexus;(ii) addressing the political economy and macroeconomics including impacts of trade, price and subsidy systems on production; and (iii) modernizing governance to strengthen policy, institutional and legal frameworks, and their enforcement for improved land and water management.

II. Challenges

6. Finite resources, outdated system designs, institutional inefficiencies, and weak governance are powerful factors restraining irrigation performance. Moving forward, there is a need for more intricate understanding of the changing rural economy and to provide robust and impactful solutions to overcome:

- (i) Outdated irrigation systems: a rigorous review of the current status of irrigation performance and defining areas of weakness is required. This includes options of completely replacing or radical re-design of decayed systems and infrastructure, rather than continued piecemeal investments in rehabilitation or modernization of systems which are no longer fit-for-purpose (shifting from protective to productive irrigation). Systems must be designed and operated consistent with modernized management, evolving irrigation and drainage service demand linked to evolving farm models, cropping patterns and economic objectives and a broader range of service objectives.
- (ii) Lack of water accounting: the quantification of water productivity to demonstrate investment benefits remains limited. Whilst targets may be set for improvements in efficiency and productivity, the discussion has often centered on debating definitions and parameters rather than taking actions. Productivity has also tended to focus on agricultural yield gains rather than considering the value of water, i.e. crop per drop. Despite a range of tools available for measurement and quantifying productivity, uptake remains slow.
- (iii) Fragmented approaches: interventions in irrigation continue to neglect core issues like atomization on irrigation systems and investing in on-farm land and water management and agriculture support services. The value of a more comprehensive package of interventions is overlooked with greater focus on investments in main system development. Water-energy links continue to be addressed in isolation of each other. The drivers of such solutions may lie outside of the water sector – the main players need to be recognized and integrated into approaches.
- (iv) Weak governance: investments in the irrigation sub-sector highlight the need for institutional and policy reforms to be undertaken in tandem with infrastructure development. Following the late 1990s to early 2000, the push for more systematic reform programs has been replaced with hardware focused solutions. Within today's rural dynamics, there is a need to re-open the dialogue and take action on the evolving role of institutions and the broader range of stakeholders. This includes addressing issues relating to depleting numbers of irrigation practitioners and reasserting that organizational and policy dynamics, and capacity building of managers and users, are essential for sustainability of infrastructure investments.
- (v) Complex and competing or conflicting policies: government policy goals and political economy drivers related to food security, poverty reduction, rural development and water resources management translate into sets of pricing,

subsidies, food procurement and trade policies. These affect farmers' decisions on cropping patterns. They influence investment patterns and incentive structures, which can affect water-provision policies and may act as a disincentive to water use efficiency. Highlighting the reality of distortions on production requires more high level discussion -including policy dialogue on trade-offs between water use efficiency and other policy objectives. New options to achieve main policy goals whilst minimizing perverse effects on water use efficiency also need to be explored.

III. ADB Operations in Irrigation

7. The post-2015 development agenda and the Sustainable Development Goals (SDG) recognize water security as an important foundation in economic growth and sustainable development. Of relevance for irrigation are SDG goals related to hunger and poverty eradication sustained, inclusive and sustainable economic growth, terrestrial ecosystem and water. SDG Target 6.4 for increased water-use efficiency across all sectors, is particularly relevant as water productivity is a key indicator.

8. The ADB Water Operational Plan 2011-2020 which considers core areas of investment for increasing efficiencies and service provision in water use across a range of users, specifically, improvements in irrigation productivity and efficiency, and investment in projects that demonstrate improved on-farm land and water management, focuses therefore essentially on SDG Target 6.4. More efforts are required to increase opportunity for private sector engagement and potential commercialization of irrigation systems.

9. Since 1969, ADB has invested \$8.43 billion in irrigation but in the past 5 years, the average annual lending has only been \$0.28 billion. This compares with \$1.51 billion for urban water investments over the same period. There is clearly a wide gap between the financing demand and actual annual lending.

IV. Forum Objectives

10. The first Asian Irrigation Forum (AIF) held in 2012 brought together over 200 stakeholders (from government, development partners, civil society and the private sector). Its outcomes were: (i) regional knowledge sharing; (ii) showcasing best practices; (iii) presentation of technological and innovation advancements; and (iv) identification of future investment opportunities.

11. Following on from the first AIF, the second forum will aim to: (i) seek participants' views to better understand country-level perspectives; (ii) highlight practical solutions that apply latest knowledge and innovations; (iii) identify the scale of required investments and appropriate financing mechanisms; and; (iv) understand future challenges posed by a declining population of irrigation specialists.

V. Workshop Structure

12. The forum will comprise thematic sessions and breakout groups. Day 1 will include a high level dialogue with panelists from ministries of finance, planning, water and agriculture of various developing member countries. The panel will dialogue with the audience on regional perspectives, setting the backdrop for the event. The closing session on Day 3 will



conclude the main findings and present a summary of the way forward. This will include firm commitments on specific areas of action, investment priorities and identifying roles of key partner agencies.

13. The three day program will comprise thematic sessions on:

- Session 1 - Performance: understanding performance and challenges for achieving results through modernization – processes to be adopted, improving overall water productivity and meeting new service objectives in practical terms on irrigation projects including how measurement can be achieved on systems, why performance benchmarking remains weak, lessons learned from projects, and future initiatives.
- Session 2 – Innovations: irrigation within the context of water-energy links, cost effectiveness of solar pumping, agriculture waste to energy projects, opportunities for improved technologies and knowledge in irrigation – reintroducing laser land levelling, and other more innovative options of irrigation water re-use (upscaling potential), environmental engineering and ICT.
- Session 3 – Financing: perspectives on the outcome of decades of investment in irrigation, innovative financing options for achieving results –opinions and experiences from various lending modalities, private sector participation in irrigation and financing for operation and maintenance–which remains largely unaddressed. There is a drive for increased investments in infrastructure - is there sufficient absorptive capacity in the irrigation sub-sector.
- Session 4 – Governance: For investments in irrigation to be more impactful elements of governance including policy, institutional and legal frameworks need to be addressed. Institutional reform and policy dialogue are less obvious elements of investments to date; macroeconomics, subsidies, price support policies and evolving trade rules have major impacts on sub-sector outcomes; participation and inclusion, especially of women, and of a broader range of stakeholders on a policy dialogue on the future evolution of the sector are critical for improving performance. This session will include a youth-led debate to highlight community perspectives on “who will produce food for our future”.

