



Re-Defining Irrigation Modernization

Mr. Lance Gore
Senior Water Resources Specialist, ADB

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Innovations for More Food with Less Water



- Comprehensive synthesis of state-of-the-art knowledge and international best practices
- System-level investigations and pilot testing of initiatives on existing MMI schemes in Bangladesh, India and Nepal
- Based on an integrated approach to planning and implementation
- Performance Benchmarking using FAO RAP-MASSCOTE, water accounting, remote sensing, Participatory Rural Appraisals and Focus Group Discussions
- Holistic improvements to infrastructure, agriculture and management organizations.
- Assessments of water and energy balances, productivities, investment and recurring costs, and economic and financial returns
- Goal to improve water delivery service (reliability, flexibility, adequacy) and raise crop and water productivities.

Irrigation Modernization is the...



- *Process of upgrading infrastructure, operations and management of irrigation systems to sustain the water delivery service requirements of farmers and optimize production and water productivity.*

Further defined as...

- “process” means that modernization of systems is a continuous exercise. This must account for future changes in the irrigation system and service requirements of the farmers. Ideally the process will align with existing government development and budgetary timeframes and systems;
- “upgrading” means improving beyond what is existing; not replacing or rehabilitating. It means applying design best practices to infrastructure to optimize operation requirements and maximize system performance and efficiencies;
- “infrastructure” means all physical assets related to the irrigation system including headworks, conveyance systems, drainage systems, monitoring systems, communication systems, farm and access road networks, operation buildings, etc.;
- “operations and management” means all human resources and management processes responsible for managing, operating and maintaining the irrigation system including ground and surface water management, and the associated physical infrastructure.
- “irrigation system” encapsulates all physical and non-physical components that contribute to convert water and nutrients into food and fiber. This includes the infrastructure, water resources, agency staff, farmers, services providers, supply and market chains, etc.;

and ...

- “sustain” means that the irrigation system will continue to operate at its optimal performance. This includes managing the water resources to account for reallocations to other users, prevent adverse depletion, and enhance resilience to climate variability and impacts anticipated from climate change. It also means ensuring that all costs relating to management, operation, maintenance, and asset depreciation of the system are affordable and are fully covered through either government, user (farmer), or private sector financing;
- “water delivery service requirements of the farmers” means ensuring reliable, adequate and flexible supply of water as agreed with farmers allowing them to maximize water and agricultural productivity. This requires farmers to be involved in planning, design and operation of the irrigation system, and in routine water management decisions;
- “to optimize production and water productivity” means farmers must endeavor, and be supported through technology transfer and extension services, to optimize the productivity of their land with the available water.

What will it cost?

	Irrigated Area	Cost
	('000 ha)	(\$ million)
Central West	33,084.9	82,712
East Asia	63,022.3	157,556
Pacific	38.7	97
South Asia	73,153.9	182,885
Southeast Asia	23,339.3	58,348
Total	192,639.1	481,598
Unit cost (\$/ha)	2,500	