

## RE-VISITING THE RAP EVALUATION FOR IRRIGATION MODERNIZATION

CONCEPT AND APPLICATION FOR SMALL-SCALE IRRIGATION

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3<sup>rd</sup> World Irrigation Forum  
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## OUTLINE

- Performance assessment in small-scale irrigation
- Re-visiting Rapid Appraisal Procedure (RAP) in small-scale irrigation
- Rapid Appraisal Procedure (RAP) application and lessons learnt in pilot schemes
- Conclusions
- The way forward

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### Role of performance assessment in small-scale irrigation schemes

- As the engine of overall economic growth, agriculture is the main driver of freshwater exploitation at 73 % globally.
- Irrigation schemes are still underperforming and failing to provide flexible, reliable and equal water services.
- Technical and management design needs be reviewed to reduce inefficiencies.
- Systematic assessment is required to close the gap between conceptual frameworks and pragmatic approaches.

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### Role of performance assessment in small-scale irrigation schemes

- Creating efficient design in small-scale irrigation schemes (often done by farmers) is constrained by to:
  - High degree of heterogeneity
  - Disparity amongst water users
  - Under-resourced farmers
  - Asymmetries in agricultural practices
- Methodologies are in place but need re-visiting, such as RAP of Mapping System and Services for Canal Operation Techniques (MASSCOTE) developed by FAO to accommodate SSI



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### Re-visiting Rapid Appraisal Procedure in small-scale irrigation schemes

- Systematic analysis through four main dimensions:
  - Analysing irrigation efficiency and other external indicators through Water Balance approach
  - Institutional analysis emphasizing O&M works and role of WUAs
  - Managerial deficiencies through rapid appraisal of conveyance structures
  - Assessment of water service
- Appraisal through multi-layer management, each layer providing service to next level
- Stock-taking exercise to establish cause-effect relationship of the undesired conditions

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### Re-visiting Rapid Appraisal Procedure in small-scale irrigation schemes

- Application on different scale of schemes enabled by sequential approach
- Selection of SSI based on multiple criteria analysis, e.g. hydrological features, boundaries of competent authorities (hydraulic or administrative boundaries), size of scheme, farmers' influence on scheme management
- Application of non-probability sampling to measure the uniformity of water service based on constraints to receive good water services (downstream location, topographical and structural disadvantages, social conflicts)

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### RAP application and lessons learnt in pilot schemes

- Five SSI pilot schemes selected with the same objective of “improving farmers’ livelihood through enhanced water use efficiency”
- Two countries with transition economy (Tajikistan and Uzbekistan): irrigation modernization to reach food security, convert former soviet-type schemes into family farming, increase energy efficiency of irrigation, quantify water resources, access export markets, privatization of agriculture and irrigation assets
- Two SSA countries (Burkina Faso and Uganda): smallholder dominance, centralized management, household production and consumption, low-value crops, local markets, shared assets



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### RAP application and lessons learnt in pilot schemes

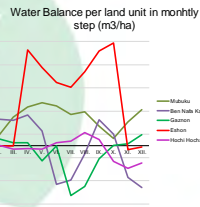
- Common consideration to overcome during the appraisal:
  - General data scarcity in SSI (climatic, agronomic, hydrological, etc.)
  - Declining system efficiency at tertiary and final delivery level due to responsibility transfer of O&M to farmers
  - Overlapping responsibilities over O&M
  - Lack of monitoring and evaluation systems
  - Responsible authorities (WUAs, WCAs, etc.) are based on administrative boundaries
  - Schemes under current structural transformation
- Combined quantitative and qualitative analysis is needed



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### RAP application and lessons learnt in pilot schemes

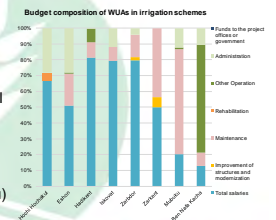
- External indicators on irrigation efficiency reveal:
  - Schemes with significant water over-supply still suffer from temporal water shortage (management failure)
  - The majority of water loss occurs at farmers-operated levels
  - Methodology and data source are not in place to calculate crop water requirement
  - In lack of control devices, water is distributed in rigid rotation (roughly, less frequent, long turn) even in the most developed scheme



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### RAP application and lessons learnt in pilot schemes

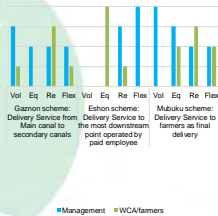
- Indicators on Institution and Organization reveal:
  - Non of the WUAs achieves full fee-collection efficiency
  - None of the WUAs can finance meaningful rehabilitation or modernization without external fund
  - Cost of salaries dominates in the budget
  - Maintenance shares small amount from the total costs – except one case (Mubuku)



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### RAP application and lessons learnt in pilot schemes

- Internal indicators (measure of volume, equity, reliability, flexibility) on water delivery service reveal:
  - Significant discrepancies between performance assessment of management and end users
  - Based on aggregated scores, overall low performance according to end users (WCA, farmers)
  - Flexibility is the lowest scored indicator according to end users



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### Conclusions

- Agreeable irrigation management strategies arise from proper data acquisition (water, economic, social and environmental aspects)
- Water related institutions should be grounded in terms of data-driven improvement
- Participatory Irrigation Management should be taken into account in performance assessment
- Farmers are responsible to reach full cost recovery
- Soft components of irrigation management are as effective means as infrastructural development



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## Way forward

- Re-visiting RAP proved successfully applicable
- Piloting proved that RAP is effective tool at different scales, including small-scale irrigation schemes
- Online launch of the tool is on-going to widen accessibility
- Further advancing of MASSPRESS, a methodology for pressurized system appraisal is on-going

