

Multiple Use Water Services for the Poor

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MUS Cost-Benefit Workshop--Leiden

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Workshop topics for discussion

- Conceptualization of MUS
- Operational or specification of conceptualization in terms of CBA
- Evidence base
- Opportunity Areas
- Future research needs

Multiple Use Services: Background

Home Gardens



Photo credit: Ronald Rospigliosi

Livestock



Photo Credit: IRC

Small-scale Enterprises



Photo credit: Charles Batchelor

Domestic uses of Irrigation Systems



Photo credit: Menno Houtstra



Photo Credit: Ronald Loeve



Photo credit: Kande Matungulu

Bill and Melinda Gates Foundation

Multiple Use Water Services for the Poor: Assessing the State of Knowledge

Final report

December 2007

Winrock International

IRC Water and Sanitation Centre

International Water Management Institute



It's on the internet:
www.winrockwater.org



Research Goal, Questions, and Methods

Study Goal: to help inform prospective investments in the water sector by assessing the potential of multiple-use water services to sustainably meet the water needs of the poor.

Question 1: What are the incremental costs and benefits of multiple-use approaches over single-use approaches?

Question 2: Where do multiple-use approaches apply and who are the main beneficiaries?

Methods

Develop a framework for multiple use services—defining service levels



Assess incremental costs, benefits and poverty impacts

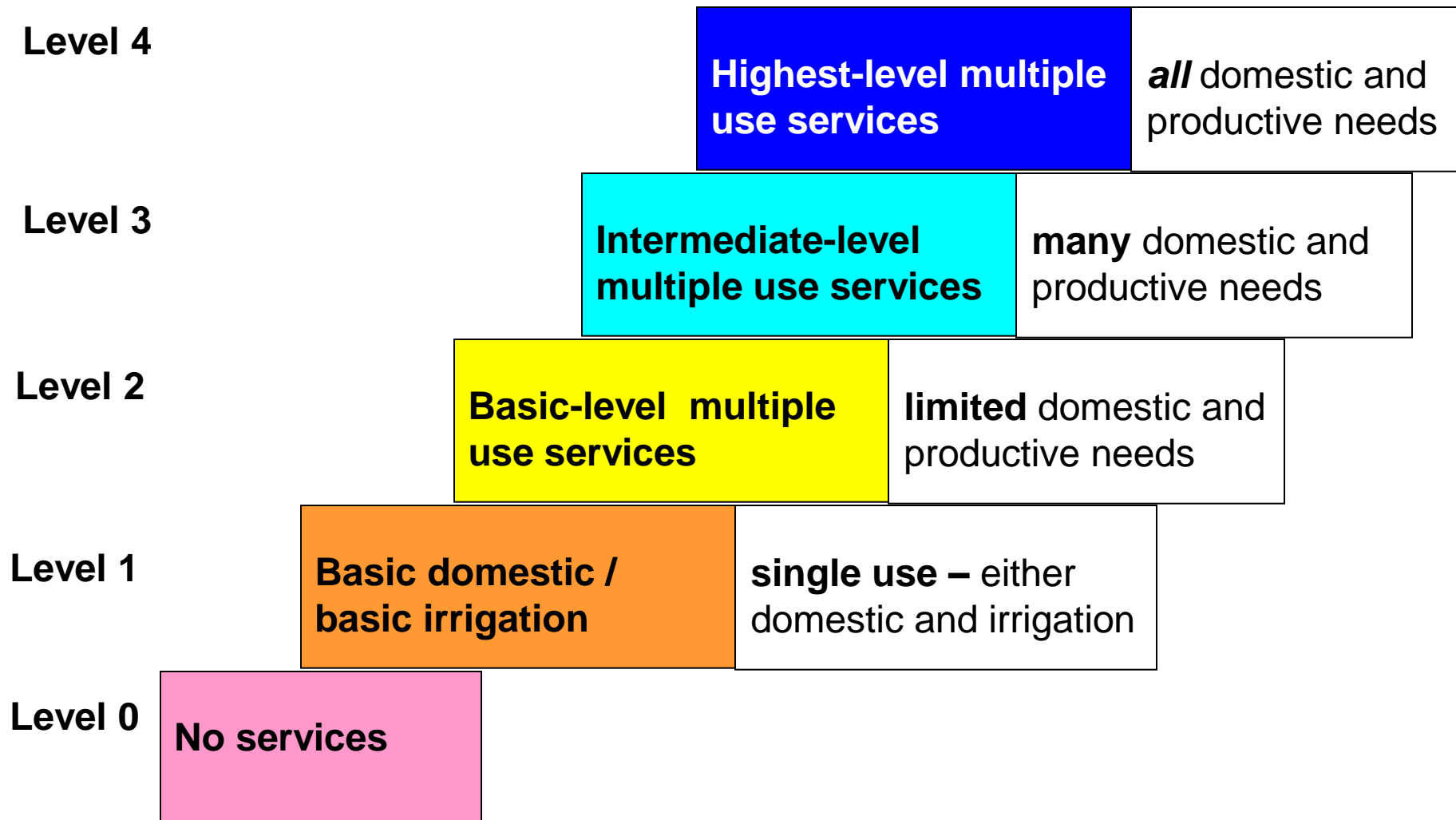


Evaluate the potential market for multiple use water services



Identify potential opportunity areas

Water Service Levels Defined

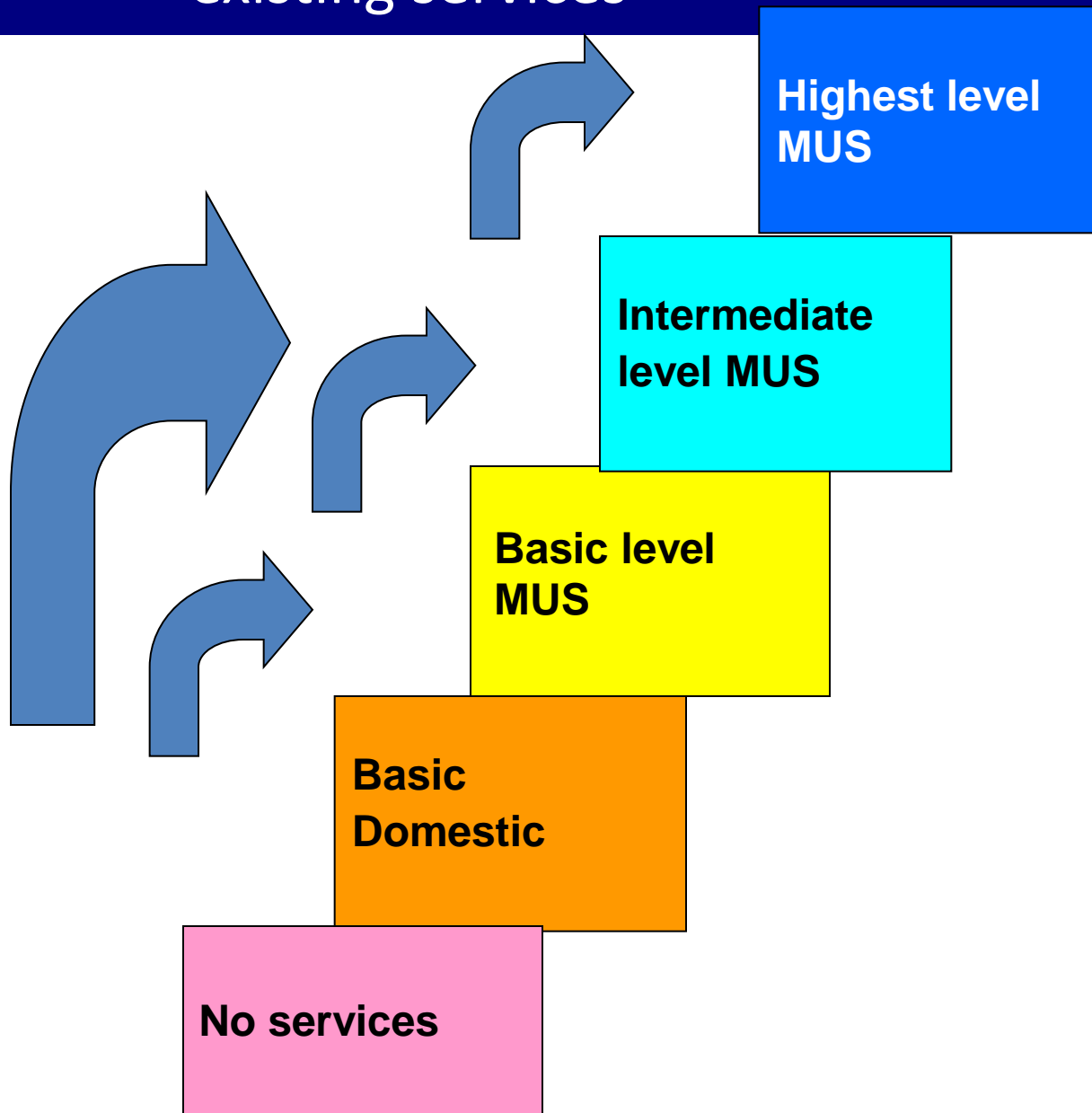


Water Service Levels Required to Support Multiple Uses



Determinants of water service levels	Domestic	Multiple Use	Irrigation
Quantity	Increasing water quantity to support productive uses →		
Quality		← Improving water quality to support domestic uses	
Reliability		← Making water availability more reliable to support non-irrigation uses	
Distance (physical, social and economic barriers to access)	Reducing distance between water source and homestead to support productive uses →	← Reducing distance to homestead, improving physical access to canals	

Costs and Benefits—New services and upgrading existing services



Per Capita Income Benefits: Multiple Use Services

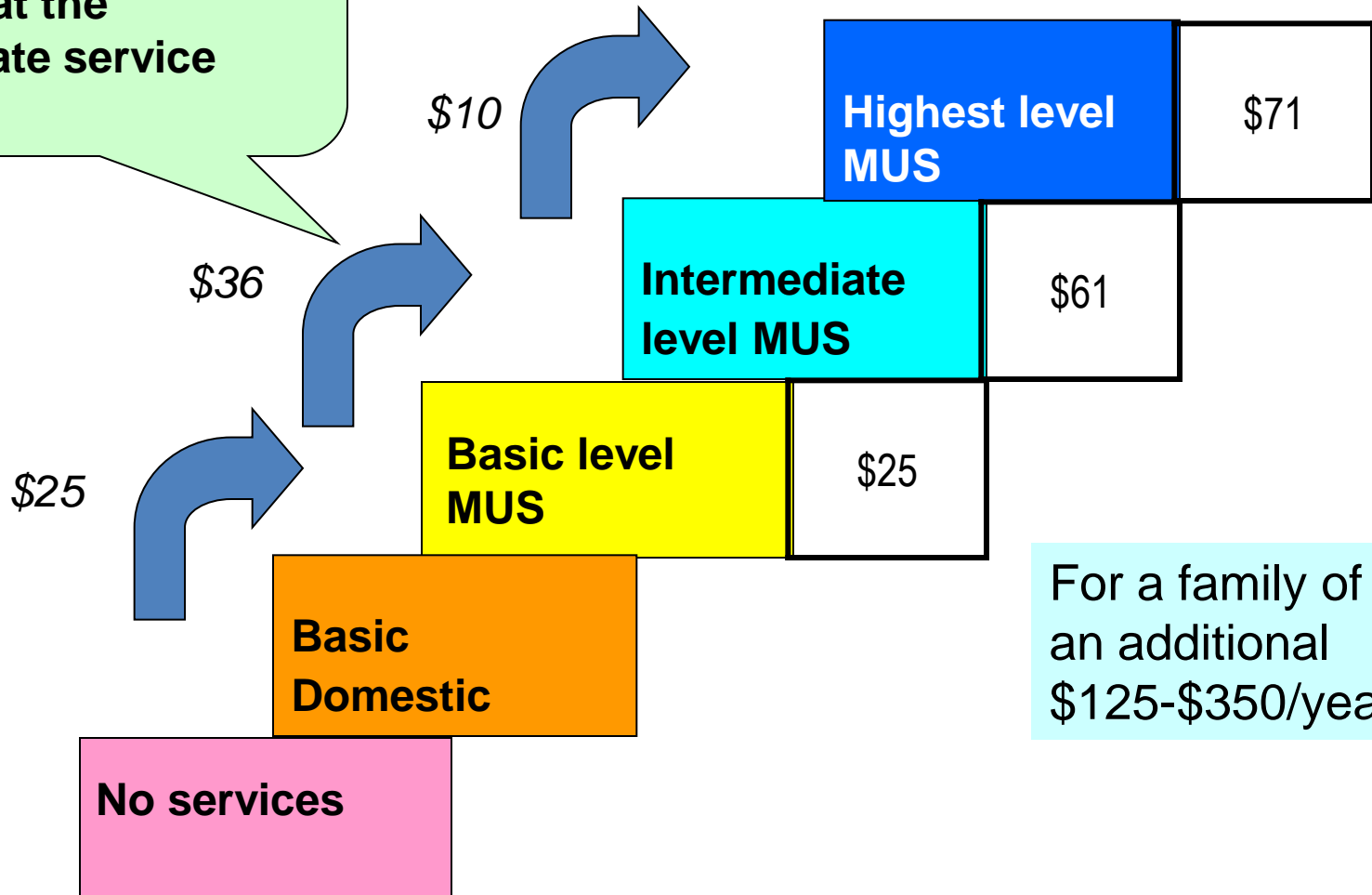
- \$25-\$70/capita yr *net*
- Additional \$125-\$350/yr for family of 5
- Above 20 lpcd, each additional lpcd generates \$.5-\$1/yr of income



Income Benefits by Service Level: Domestic

Average additional per capita annual income benefits—home gardens, livestock, small scale enterprises

The largest incremental gains in income are achieved at the intermediate service level.



For a family of 5, an additional \$125-\$350/year

Poverty Impacts: Non Financial Benefits

- Health
- Food security and nutrition
- Reduced vulnerability and diversification of livelihoods
- Social equity and empowerment



Financial analysis—huge potential to reach poor using a financially sustainable approach

- \$10 - \$100/capita for hardware and software
- \$25-75/capita per year net of O&M and capital replacement fund
- Repayment periods 3-30 months

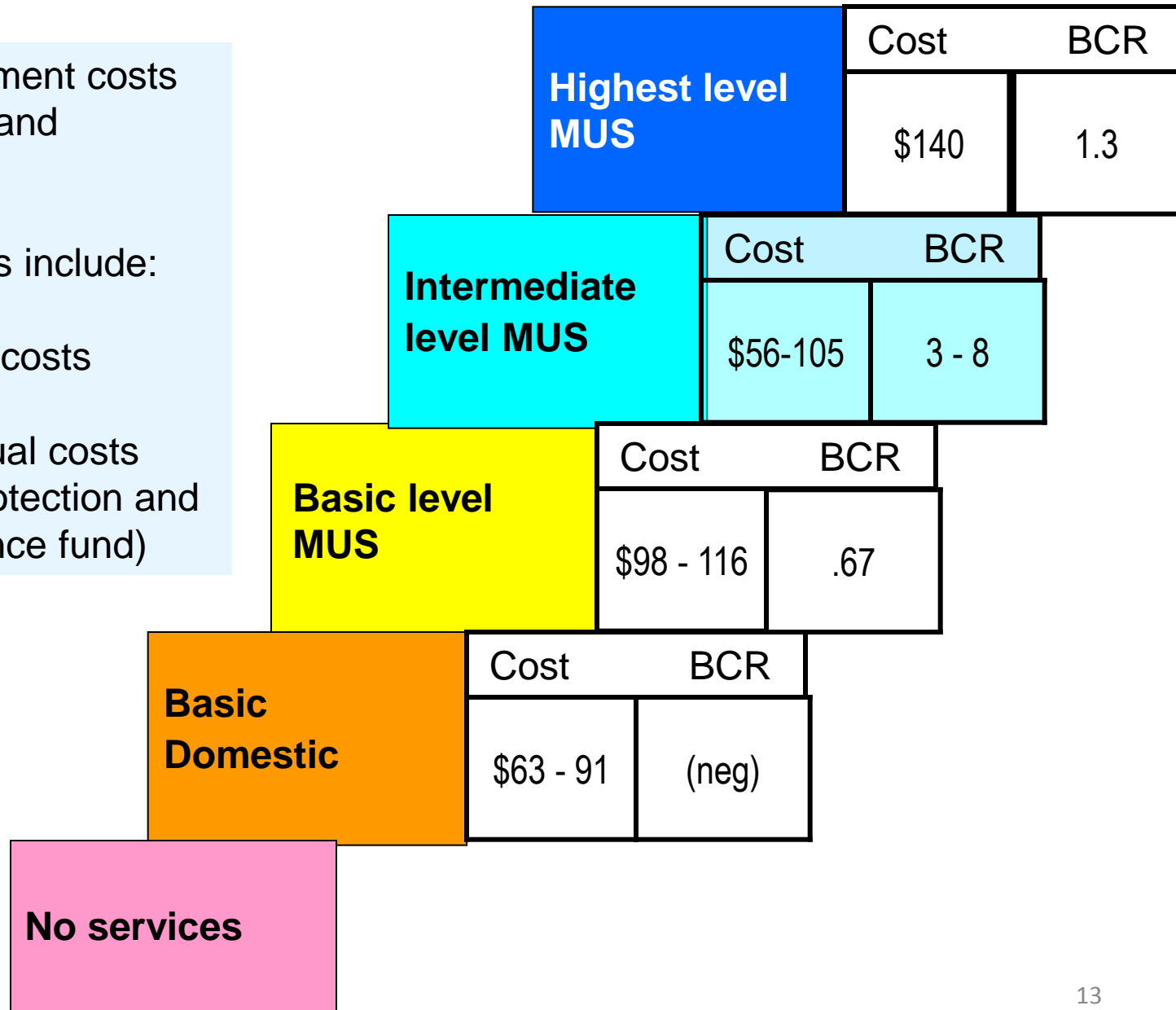


Costs and Benefits: New Domestic Services

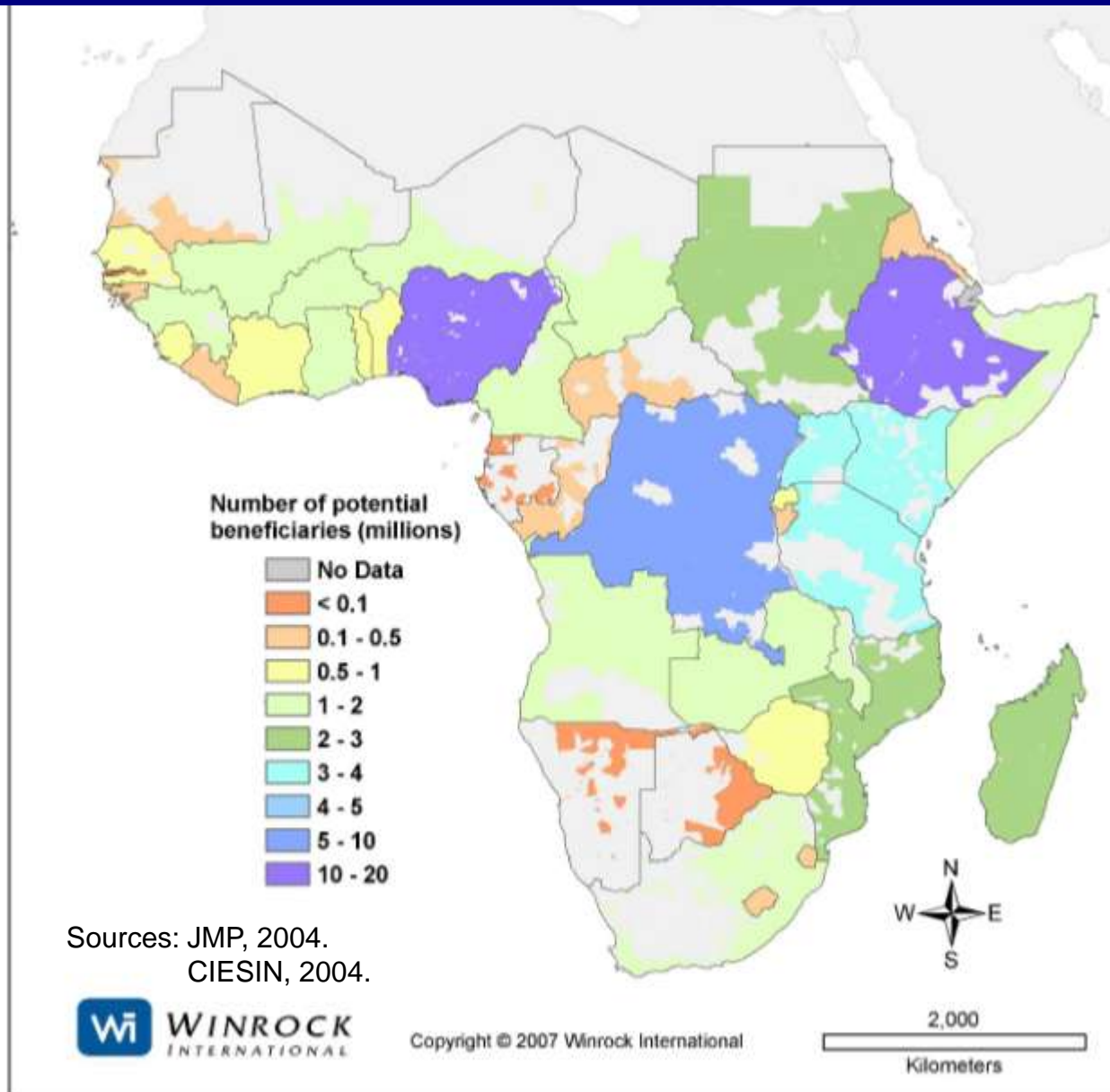
Per capita investment costs include software and hardware

Benefit-cost ratios include:

- Full Investment costs
- Re-current annual costs (O&M, source protection and capital maintenance fund)



Example: Mapping Market for New Piped Domestic Multiple Use Services



Opportunity Action Area	Market	Capital investment costs (capita)	Benefit-cost ratio	Repayment Period (months)
1. New piped multiple use services for currently unserved at the intermediate service level	137 million	\$56-\$105	3.4-7.8	13-30
2. Upgrading existing domestic piped systems to intermediate multiple uses service level	185 million	\$84	4.7	22
3. Boreholes with hand pumps: upgrading services to basic multiple use service level through communal add-ons to support multiple uses	280 million	\$25	5.4	12
4. Upgrading existing household hand-dug wells to the intermediate multiple use service level through well protection and improved lifting devices	74 million	\$39 - \$102	3.4-8.6	9-26
5. Upgrading existing irrigation systems to basic and intermediate service levels: communal add-ons, domestic storage and home water treatment	447 million	\$10 - \$110	2.9 - 27	3-24

Key Findings

Multiple-use services can cost-effectively maximize poverty impacts of investments in water services while enhancing sustainability

Potential clients: over 1 billion people

Where: rural South Asia and sub-Saharan Africa

How: Upgrading service levels within existing domestic and irrigation systems
New domestic multiple-use services

Opportunity Areas/Needs

- **Practical conceptualization:** WHAT is MUS?
- **Implementation:** HOW to implement MUS?
- **Monitoring and evaluation:** Are we getting the desired results ?

