

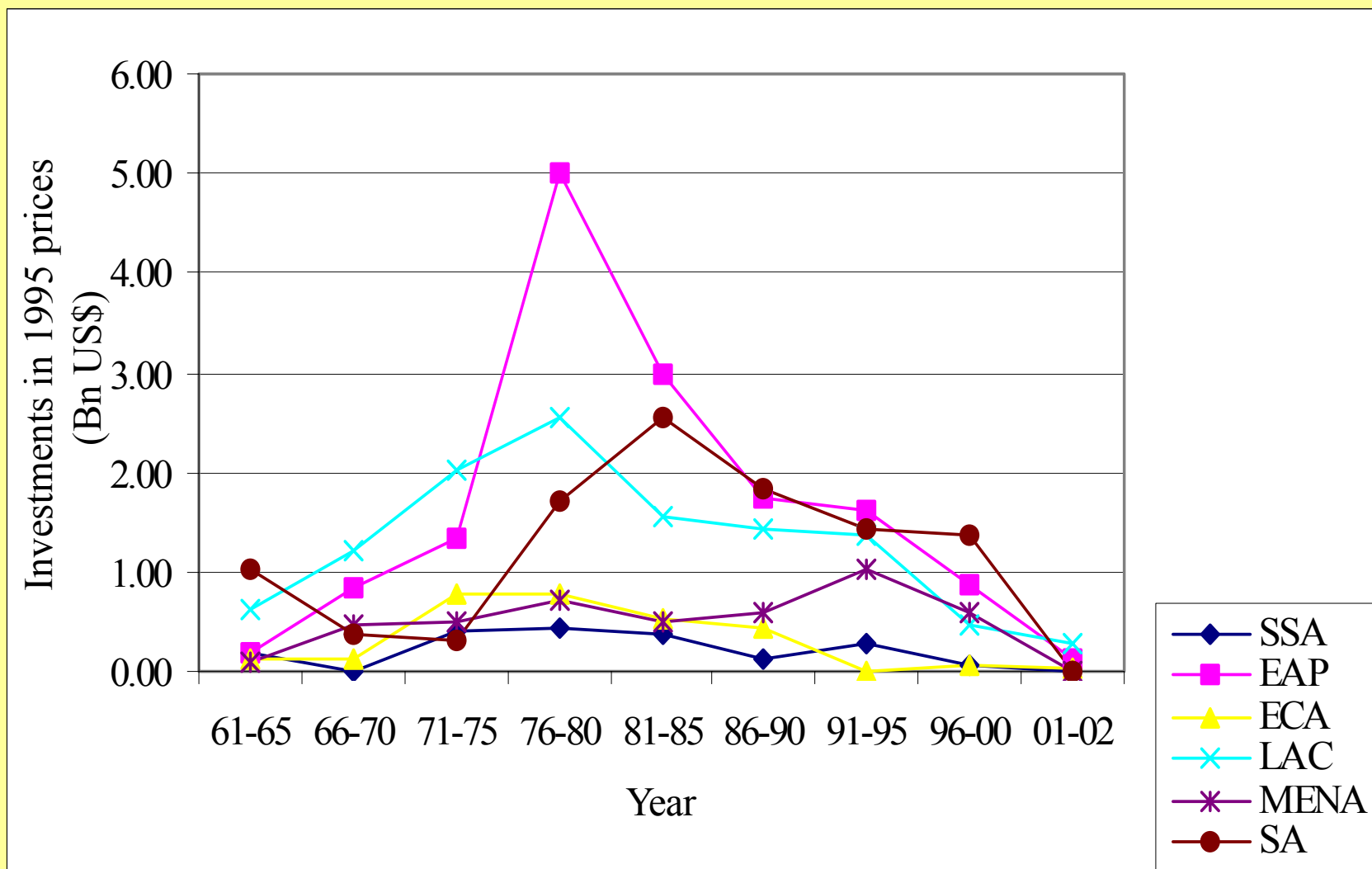
Increasing investments in agricultural water management for poverty reduction & cutting hunger in sub-Saharan Africa

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Presentation Outline

- Introduction on investment trends in SSA
- The SSA setting
- Need for innovative investments
- The AfDB-WB-IFAD-FAO-IWMI investment strategy for agricultural water management (NEPAD support)
- Next steps

Irrigation investments very low in SSA & decreased since 1980s...



Source: Amarasinghe et al 2003

Reasons given for general decline ...

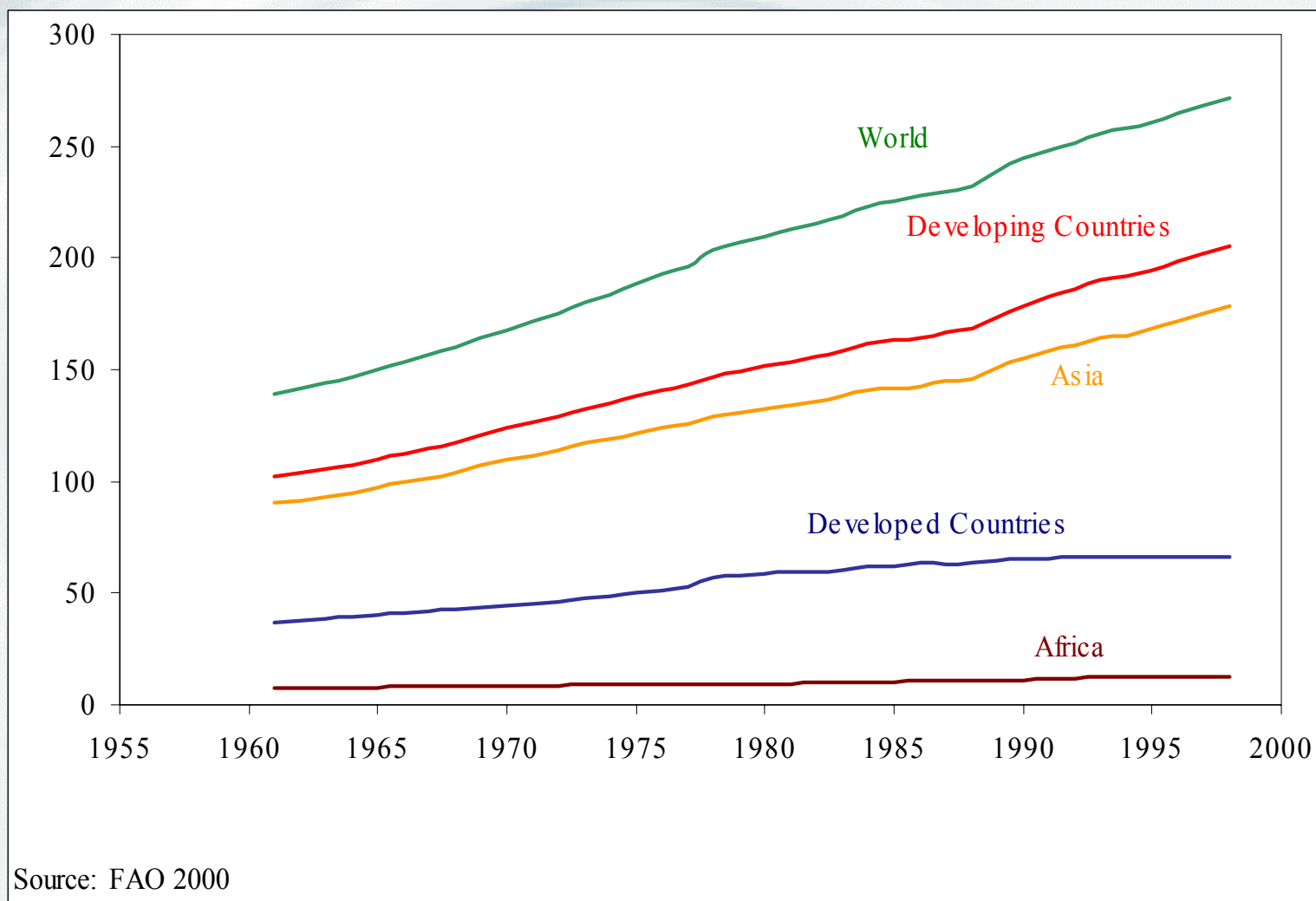
- past projects perceived to perform poorly
- irrigation projects becoming more costly
- irrigation investments crowded out by lending in structural adjustment in 1980s & later focus on environment
- irrigation investments became less attractive with declining international food prices

...but more important: understand reasons for very low investments in SSA & how to increase

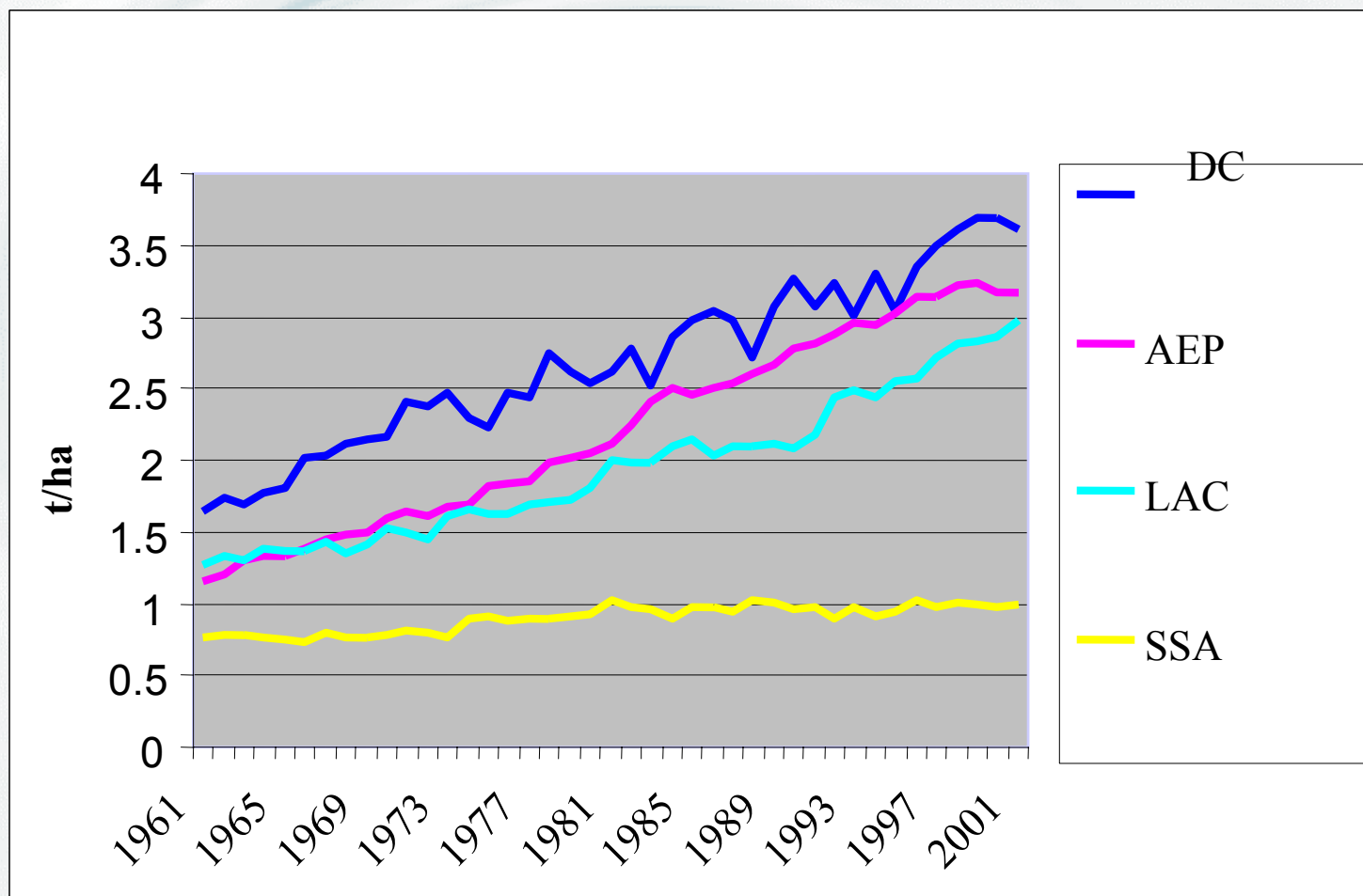
In SSA ...

- agriculture remains the important sector for many countries contributing about 30% of total GDP; 67% of employment
- 80% of poor live in rural areas; dependent on agriculture for livelihood
- population expected to increase by 3% annually to over a billion in 2025
- agriculture production needs to increase by 6% annually to achieve food security by 2015

Irrigated area (Mn ha), 1961-1998



Cereal yields (t/ha), 1961-2001



cont...

- substantial new investment in agriculture needed to meet targets of poverty alleviation & food security; NEPAD's CAADP calls for \$37 Bn on land & water management in 15 years
- FAO estimates 75% of growth in crop production in SSA required by 2030 will come from intensification
- requires new & effective types of investment in agriculture water development

First steps towards increasing investments ...

Any effort to arrest investment decline will need to provide answers to:

- what have we learned from past investments
- what are the impacts of alternative investment options on poverty reduction & cutting hunger
- what will we do differently; defining an investment strategy for agricultural water use

Need for innovative approaches to agriculture water investments...

- important but limited opportunities for formal & large-scale irrigation investments
- dispersed populations, resource-poor farmers require low-cost sustainable ways to improve water & land management
- small scale group schemes one option but experience is mixed

... business as usual will not work



AfDB-WB-IFAD-FAO-IWMI (NEPAD support)

**=> investment strategy for water in
agriculture in SSA**

**A search for innovative, low-cost
sustainable technologies & approaches for
agriculture water management that can best
contribute to reducing poverty and hunger**

“Trends & Opportunities in agricultural water management in SSA – A collaborative program”

- (1) regional **demand** for products of irrigated agriculture
- (2) **assessment of potential** for improving agricultural water management
- (3) review of irrigation project **planning and implementation** process
- (4) **irrigation cost** study
- (5) constraints and opportunities for **private sector participation** in agricultural water development and management
- (6) study on agricultural water development for **poverty reduction**
- (7) **health & environmental & livestock** aspects
- (8) agricultural water use from a **basin perspective**

(1) Regional demand (FAO-led)

- diagnosis of opportunities & prospects for national, regional, & international markets
- establish a regional perspective on market opportunities for the products of irrigated agriculture
- establish production & consumption baseline
- diagnosis of market performance & constraints & carry out market projections taking into account:
 - impacts of expected policy shifts and institutional adaptation; development of staple & non-traditional (agrifloral & horticultural) export crop markets; macro trends in sub-regional markets

(2) Assessment of potential (IWMI w/ IFPRI)

- assess potential for SSA to meet its future food security requirements under various sets of conditions -- by country, river basin, sub-region
- analyze impact of various water use investment options affecting rainfed & irrigated agriculture mix, food production, water supply-demand trade offs, impact of food related policies on production, food security & poverty reduction
- will be linked with regional demand study

(3) Planning & implementation (IWMI)

- identify ways to increase the performance & sustainability of investments in agricultural water, by identifying practical measures to improve project preparation & implementation
- includes planning, appraisal, implementation arrangements, supervision (or ‘implementation support’) & systems for monitoring & evaluation
- basically institutional analysis – incentives, communication, power relations, etc.

(4) Irrigation costs (IWMI)

- address the question of whether per hectare investment costs in irrigated agriculture in sub-Saharan Africa are really high
- empirically establish factors contributing to costs taking into account typology of irrigation projects, crops irrigated, & expected benefits
- identify ways & opportunities to reduce costs

(5) Private sector participation (IWMI)

- identify & document various forms of public-private partnerships & modes of private sector participation
- examine factors promoting or constraining private sector participation
- promote innovative private sector investments & participation

(6) Poverty reduction (IFAD & IWMI)

- examine poverty reduction impacts of various types of agricultural water investments
- identify the most effective technologies and institutional approaches & propose future agricultural water development investments that will better alleviate poverty than those of past
- articulate the case for increased investment in agricultural water development for poverty reduction

(7) Health, environment & livestock issues (IWMI)

- identify environmental & health implications of different forms of agricultural water development & opportunities for mitigating negative impacts for a more effective investment strategy
- livestock component will trace link of agricultural water use by livestock, corresponding health & environmental implications, & investment implications

(8) Agriculture water use in a basin perspective (IWMI)

- identify ways IWRM approaches that can be made more inclusive to enhance performance & impact on poverty reduction, food security & sustainable economic growth
- help translate investors' strategy towards rural development & agricultural growth into action, to upscale successful experiences, & to provide strategic guidance (for governments, international financing institutions, bilateral donors & NGOs) in design of new projects which contribute better to achievement of MDG

Other areas of focus



- potential for sustainable groundwater exploitation for increased food production
- potential for sustainable exploitation of wetlands for agriculture
- urban & peri-urban agriculture
- multiple use water supply

Examples of water technologies for resource poor farmers

- **low-cost, small-scale, individual water lifting and application devices**
- **affordable precision irrigation—improved crop per drop**
- **rainwater harvesting, soil moisture retention technologies**
- **sources: surface water, groundwater, wetlands, peri-urban water, domestic water supply (for home gardens & subsistence agriculture), etc.**

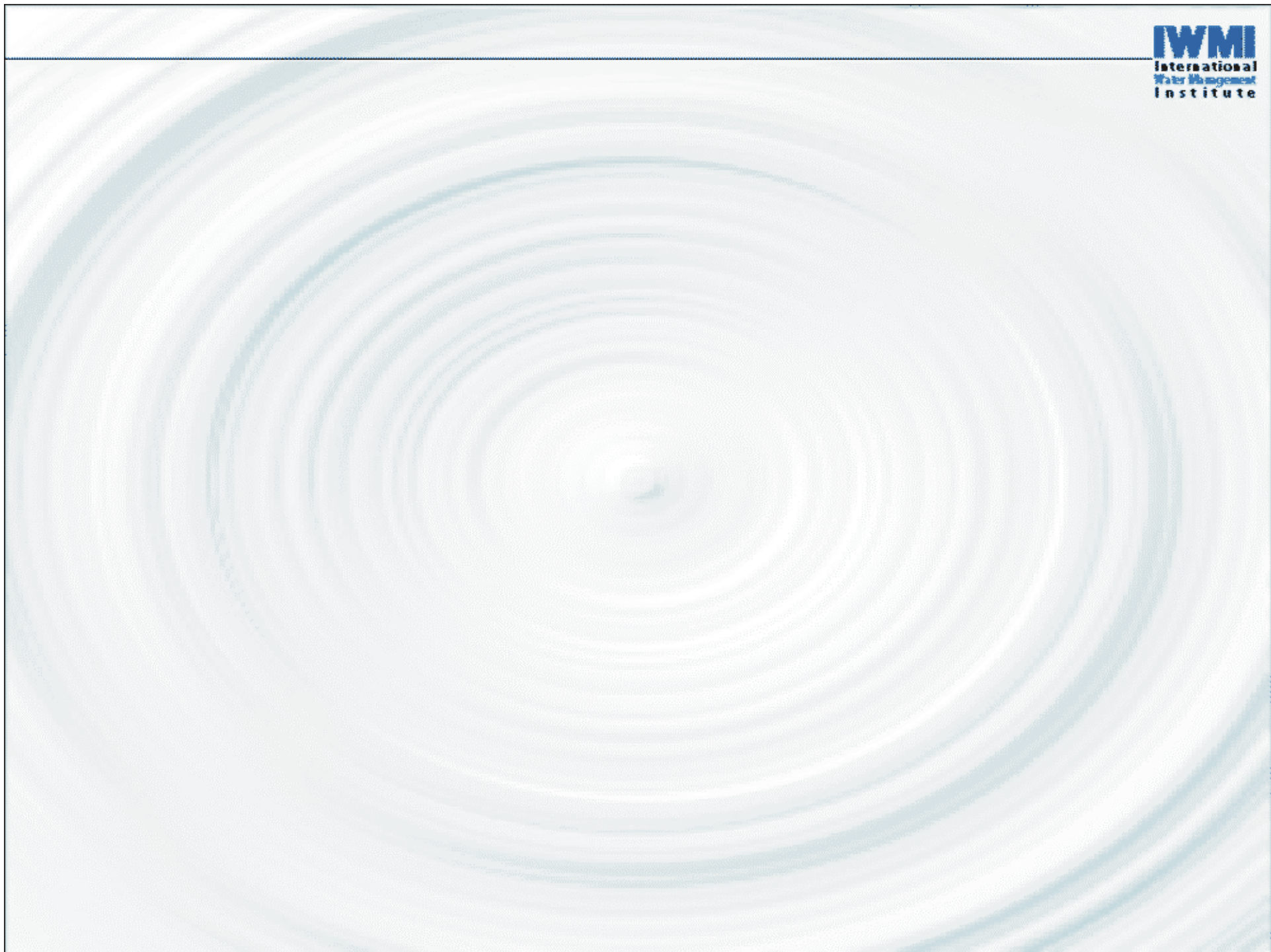
December 2004 Outputs

- 8 thematic reports
- one synthesis report
- agency strategy for agricultural water management in SSA
- support to translation of NEPAD's vision into a strategy

Way forward

- many questions remain to be answered if we are to make sure that future investments will work
 - e.g. whether specific/localized interventions would add up to significant & substantial macro impacts? OR would potential macro & sectoral intervention to support local investment play out as desired at the local level? Is there an optimal mix of macro & local interventions?
- innovative investments require supportive policies & effective implementing institutions in order to succeed

THANK YOU



... a simulation exercise: an AGE for a sample country

- illustrates how investments productivity enhancing water technology will impact on the distribution of welfare benefits & ultimately reduce hunger & poverty, given existing economic & institutional settings**
- identifies complementary policies &/or investments which can reinforce & increase desired impacts on a specific vulnerable group**

- **this exercise examines the impact of investments in infrastructure including better water management practices on poverty reduction**
- **data for AGE model derived from the official Social Accounting Matrix (SAM)**
- **appealing features of the SAM of South Africa:**
 - (a) has a breakdown in employment by skill levels & ethnic origin by sector**
 - (b) has a breakdown of households by income & ethnic origin**
 - (c) the sources of revenue of households identified**
 - (d) large sectoral disaggregation**

A prototype economy-wide model for the impact of investments in water development on poverty reduction

- investments in water development undertaken at the production level**
- poverty & wealth measured at the household level**
- applied general equilibrium (AGE) models capable of capturing effects of total economic interaction on all agents in an economy**
- AGE models assume supply equals demand in multiple product markets**
- AGE models assume agents behave rationally**
 - households maximize utility
 - firms maximize profits

- Focus on the subsistence sector => does not export nor produce for intermediate consumption; uses only unskilled & semiskilled labor; pays a minimum of indirect taxes
- Policy simulations
 - a subsidy on the use of water at the intermediate level & use of tax relief policies zz (as surrogate for lack of capital & can be investment in tools/equipment which increase availability of water, e.g. treadle/small motor pumps, & potential for water capture & storage)
 - has beneficial output & employment effects on the subsistence sector

Simulation results ...

Quintiles	Base case	100% subsidy on water use & elimination of indirect tax	% Δ from Base
O_Q1 poorest “other”	4072.10	4072.144	0.001
O_Q2	7137.42	7137.464	0.001
O_Q3	9718.74	9718.775	0.000
O_Q4	14532.33	14532.43	0.001
O_Q51	9481.26	9481.304	0.000
O_Q52 richest “other”	13165.42	13165.573	0.001
B_Q1 poorest black	1236.06	1236.062	0.000
B_Q2	3153.69	3153.699	0.000
B_Q3	5404.85	5404.873	0.000
B_Q4	6927.72	6927.758	0.001
B_Q51	5819.54	5819.574	0.001
B_Q52 richest black	11649.13	11649.188	0.001

more results ...

Quintiles	Base case	Elimination of all import tariffs; 50% reduction in world agriculture price; 100% subsidy on water use & elimination of indirect tax in subsistence agriculture	% Δ from Base
O_Q1 poorest "other"	4072.1	4102.92	0.757
O_Q2	7137.42	7169.92	0.455
O_Q3	9718.74	9758.479	0.409
O_Q4	14532.33	14584.295	0.358
O_Q51	9481.26	9519.531	0.404
O_Q52 richest "other"	13165.42	13212.729	0.359
B_Q1 poorest black	1236.06	1259.521	1.898
B_Q2	3153.69	3192.105	1.218
B_Q3	5404.85	5445.721	0.756
B_Q4	6927.72	6972.579	0.648
B_Q51	5819.54	5853.868	0.590
B_Q52 richest black	11649.13	11698.895	0.427

Summary of simulation results

- this exercise examines macro impacts & potential of a water technology investment in reducing poverty & contributing to economic growth
- the modest welfare impacts can mean two things:
 - (1) amount of subsidy relative to was too small to make much difference
 - (2) be taken as an indication that increased investments in productivity enhancing activities in the subsistence agriculture will not be sufficient to eliminate poverty

- **there is a need to complement such investments with increased social spending, e.g. on rural health, education & training to reduce vulnerability; this agenda will require more investments**
- **it helps define the investment direction from a macro perspective by answering the question on what are the most promising interventions for reducing poverty & hunger & accelerating growth**

Addressing the investment decline ...

- The AGE type of analysis can be complemented well by other components of the Investment Strategy:
 - poverty reduction study which will assess the “relative” appropriateness, acceptability, & effectiveness of different pro-poor technologies from the farmers’ point of view
 - environment & health study which will the other investment study components will provide answers to other questions as well as micro analyses & evidence (WATSIM, PODIUM, health & env’t

Innovative approaches in water in agriculture are required...

- some limited options for public sector large-scale irrigation schemes
- potential for small-scale group schemes
- **dispersed, resource-poor farmers require individual, low-cost sustainable water and land management technologies**
- complement with right policy environment, support services, and markets