40 years of irrigation and drainage system performance

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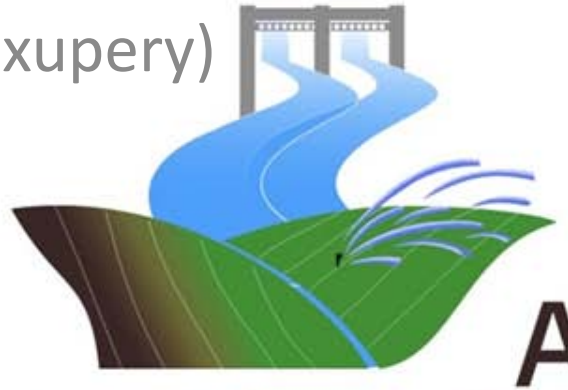

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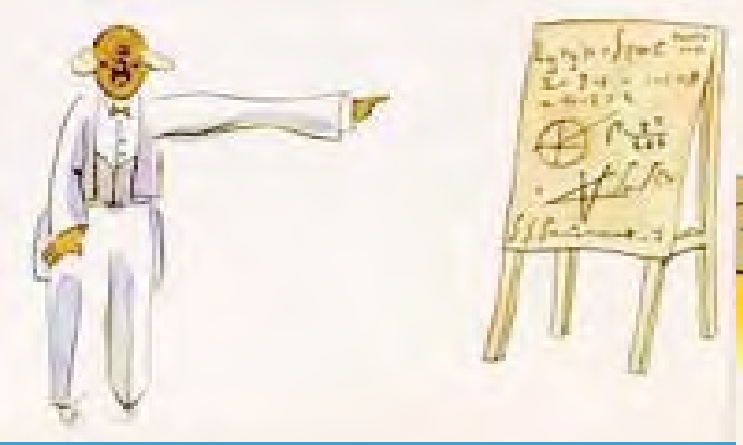
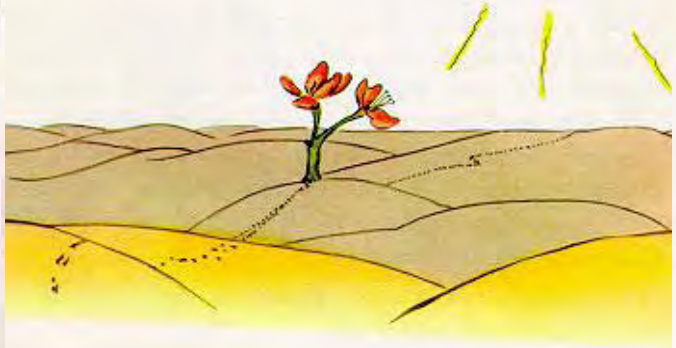
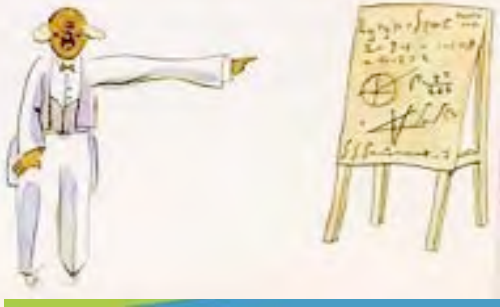

Questions

- Have the irrigation and drainage systems really performed over the last 40 years and solutions worked as claimed?
- If not, is it a problem of implementation?
- Or do we need to revisit our solutions and our understanding of irrigation and drainage systems?
- Are traditional performance indicators pertinent in the new context and the set of challenges the region is facing
- What are the implications if renewed investment in irrigation and drainage systems is to be effective?

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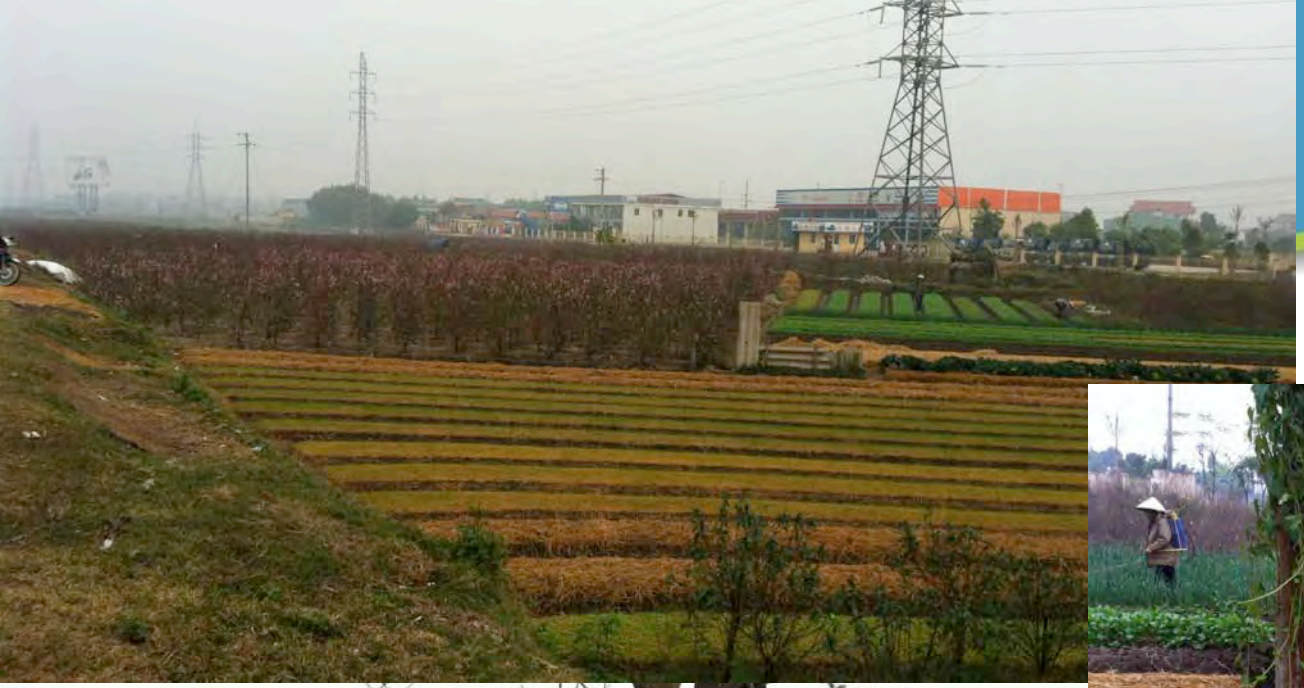

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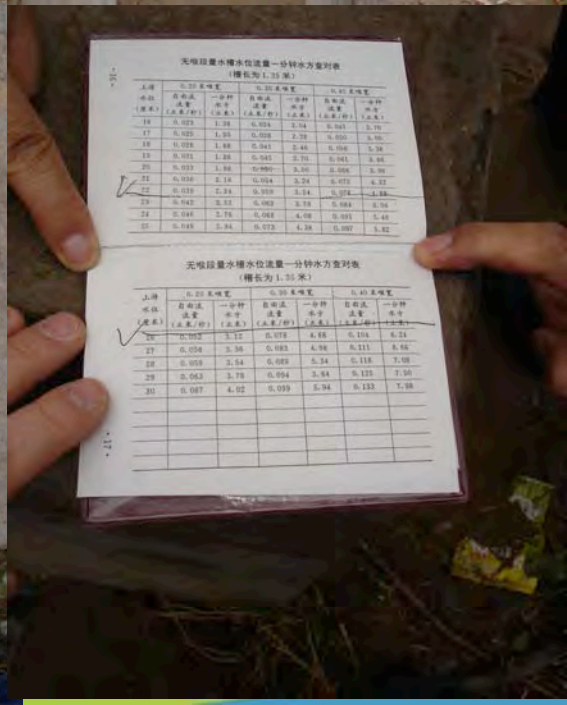
夹马口扬水工程
用水农户手册
延岷地区夹马口扬水工程管理局制




夹马口水情监测系统
图例说明
干渠
支渠
五支渠
1.000
0.364
渠道截面
实开斗数
实时水位
0.36
米
配水流量
0.310
方/秒
当日累计
1950
方

Questions / Answers

- Have the irrigation and drainage systems really performed over the last 40 years and solutions worked as claimed?
  NO
- If not, is it a problem of implementation?
  Yes/NO
- Or do we need to revisit our solutions and our understanding of irrigation and drainage systems?
  YES
- Are traditional performance indicators pertinent in the new context and the set of challenges the region is facing?
  yes/NO
- What are the implications if renewed investment in irrigation and drainage systems is to be effective?

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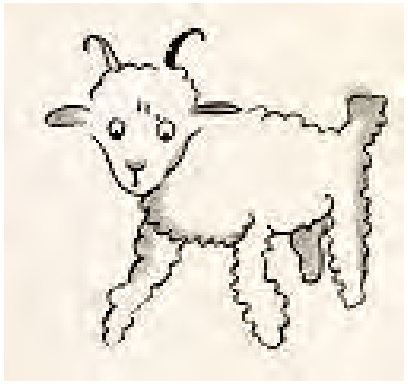

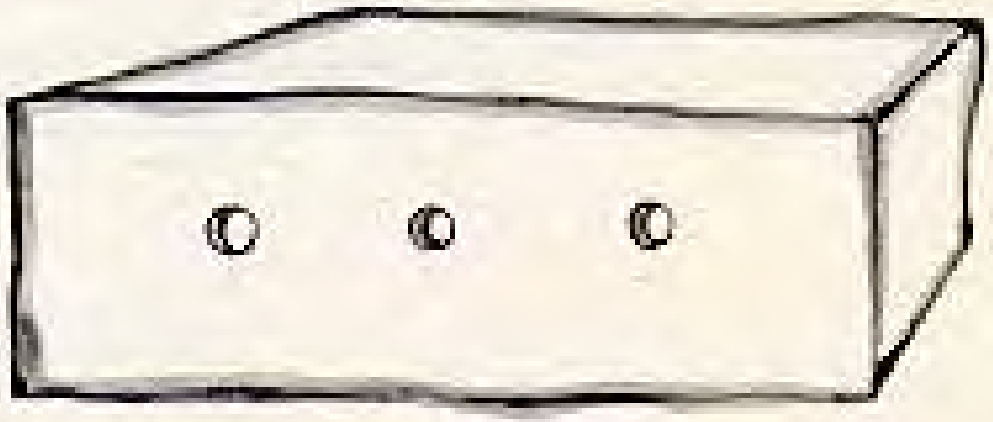

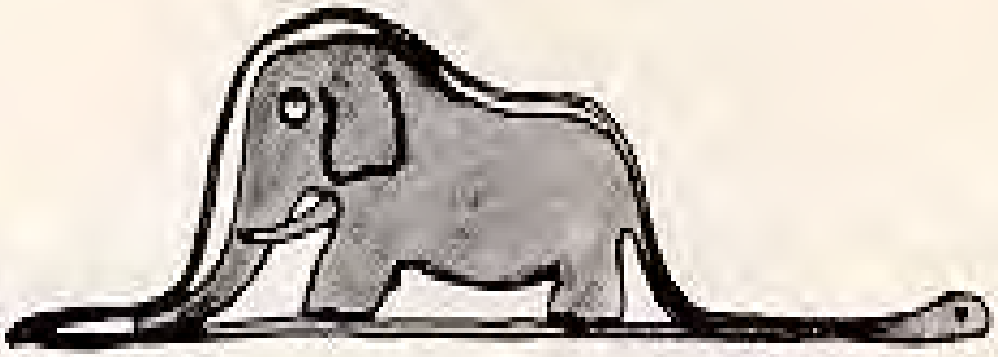

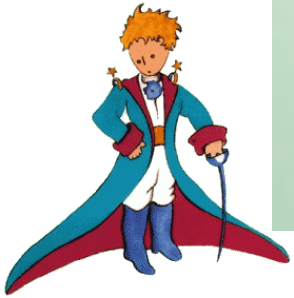

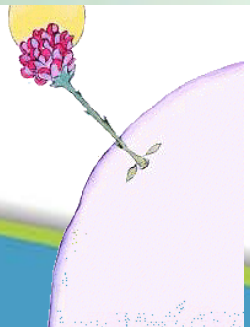

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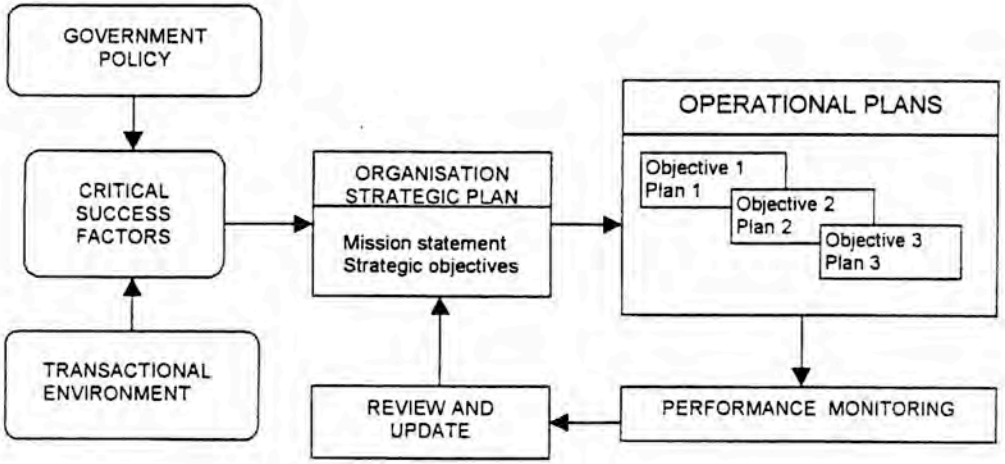
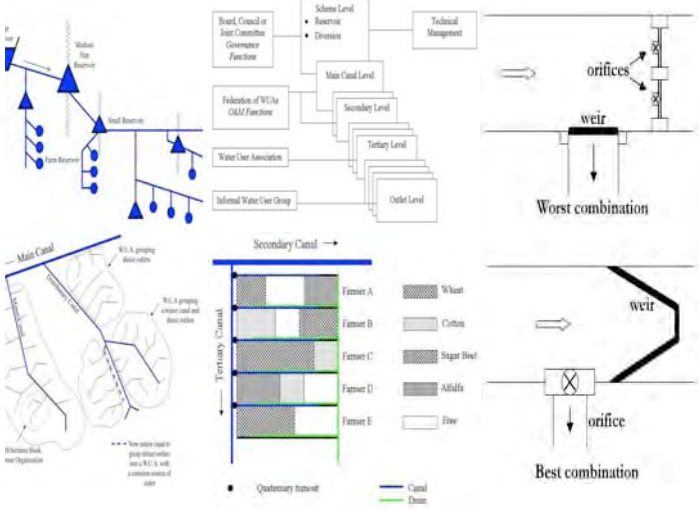
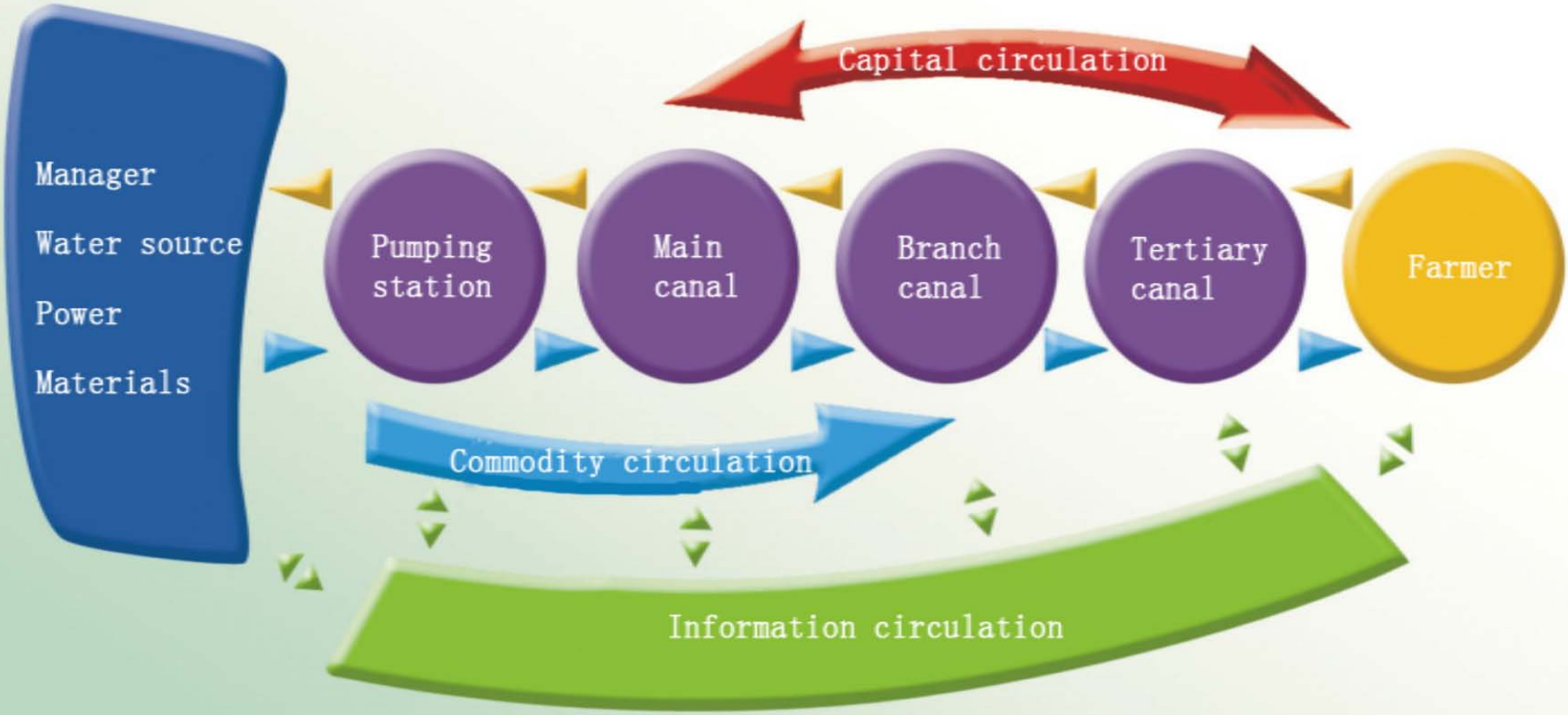

GOVERNMENT POLICY
CRITICAL SUCCESS FACTORS
TRANSACTIONAL ENVIRONMENT
ORGANISATION STRATEGIC PLAN
Mission statement
Strategic objectives
OPERATIONAL PLANS
Objective 1
Plan 1
Objective 2
Plan 2
Objective 3
Plan 3
REVIEW AND UPDATE
PERFORMANCE MONITORING


orifices
weir
Worst combination
weir
orifice
Best combination


Capital circulation
Manager
Water source
Power
Materials
Pumping station
Main canal
Branch canal
Tertiary canal
Farmer
Commodity circulation
Information circulation

National and Sub-national stage	Type 1: Reservoir gravity	Type 2: Off-river gravity	Type 3: Off-river pump	Type 4: Conjunctive	Type 5: Integrated management deltas
Post-agriculture	0	-	+	+	-
	Optimizing multiple use economically justified; limited number of sites available for new systems	Reduce. Merge or neglect due to low reliability Convert to type 3 or 4 Convert to different crops/land use	Increasing energy costs Crop diversification Rice phases out economically justified; limited number of sites available for new systems	Highly flexible Farmers decide Market rules (export possibilities) (manymers use pumps)	urnanizationOptimizing multiple use (environment, drainage isuues, per-urban agriculture, urbanization) ; more crop diversification
Agricultural Export	not economically justified by agriculutre alone but may expand;	0	0/-	+	Expand short term then decline due to urbanization, sea level rise, salinity?
	Anticipate on multiple uses	Improve, modernize (endless) Inherent limitations of supply	Likely reduction due to energy costs (for paddy)	Highly flexible Farmers decide Market rules (export possibilities) (several farmers use pumps)	Optimize multiple use Expensive drainage (environment, drainage isuues, per-urban agriculture, urbanization)
Agriculture focus	0	+	+	+	Expand short term then decline due to urbanization, sea level rise, salinity?
	Too expensive for rice but plan for future or multi-purpose structure	low costs Comparative advantage (compared with oither options)	Affordable investment Subsidized O&M	Highly flexible Farmers decide Market rules (export possibilities) (some rich farmers use pumps)	Developing paddy systems Not yet urbanization

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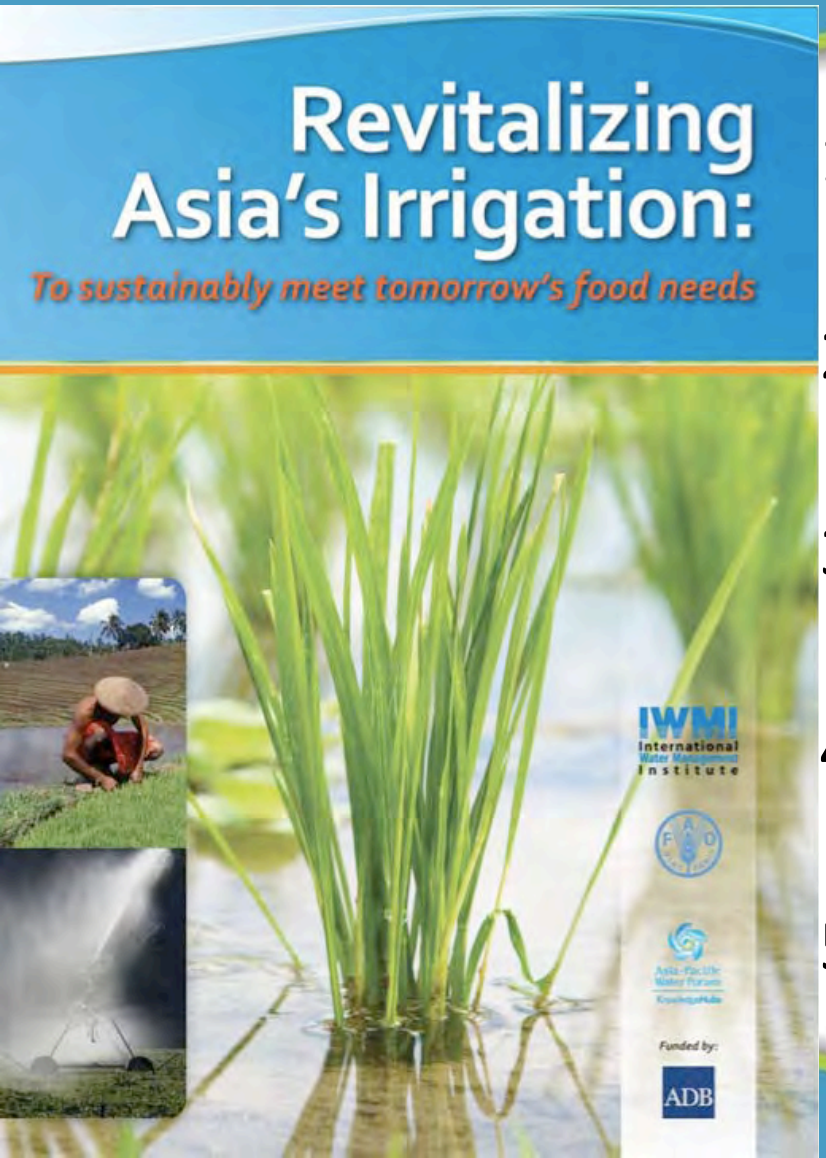
Outlining key strategies



Productivity // Service

1. Modernise yesteryears' schemes for tomorrow's needs
2. Go with the flow by supporting farmers' initiatives
3. Look beyond conventional PIM/IMT recipes
4. Build for the future: Expand capacity and knowledge
5. Look beyond irrigation: Invest outside the water sector

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How to make change happen?

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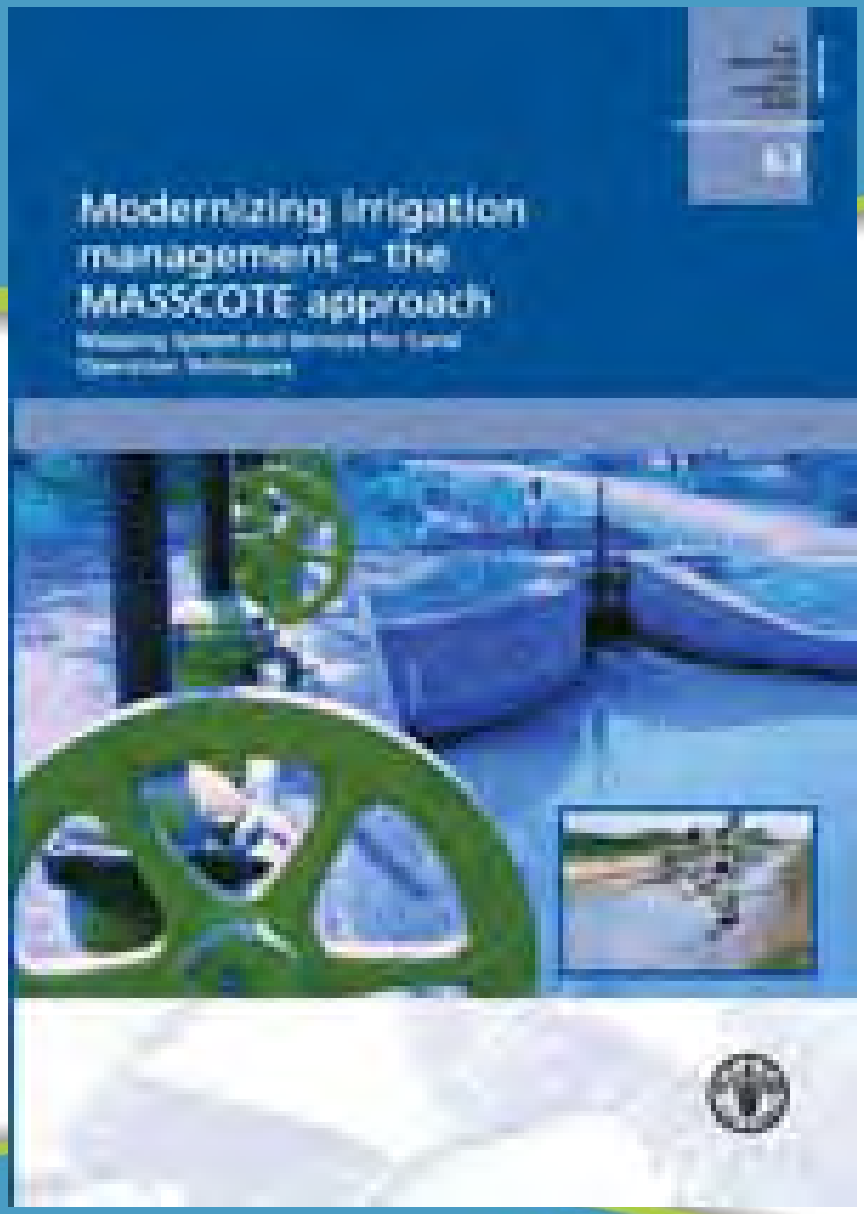

PLAN FOR MODERNIZATION
MONITORING & EVALUATION

(1) RAPID APPRAISAL PROCEDURE

(2) CAPACITY & SENSITIVITY

(3) PERTURBATIONS

(4) WATER ACCOUNTING

(5) COST of OPERATION

(6) SERVICE TO USERS

(7) MANAGEMENT UNITS

(8) DEMAND for OPERATION

(9) OPERATION IMPROVEMENTS/UNITS

(10) INTEGRATING SOM OPTIONS

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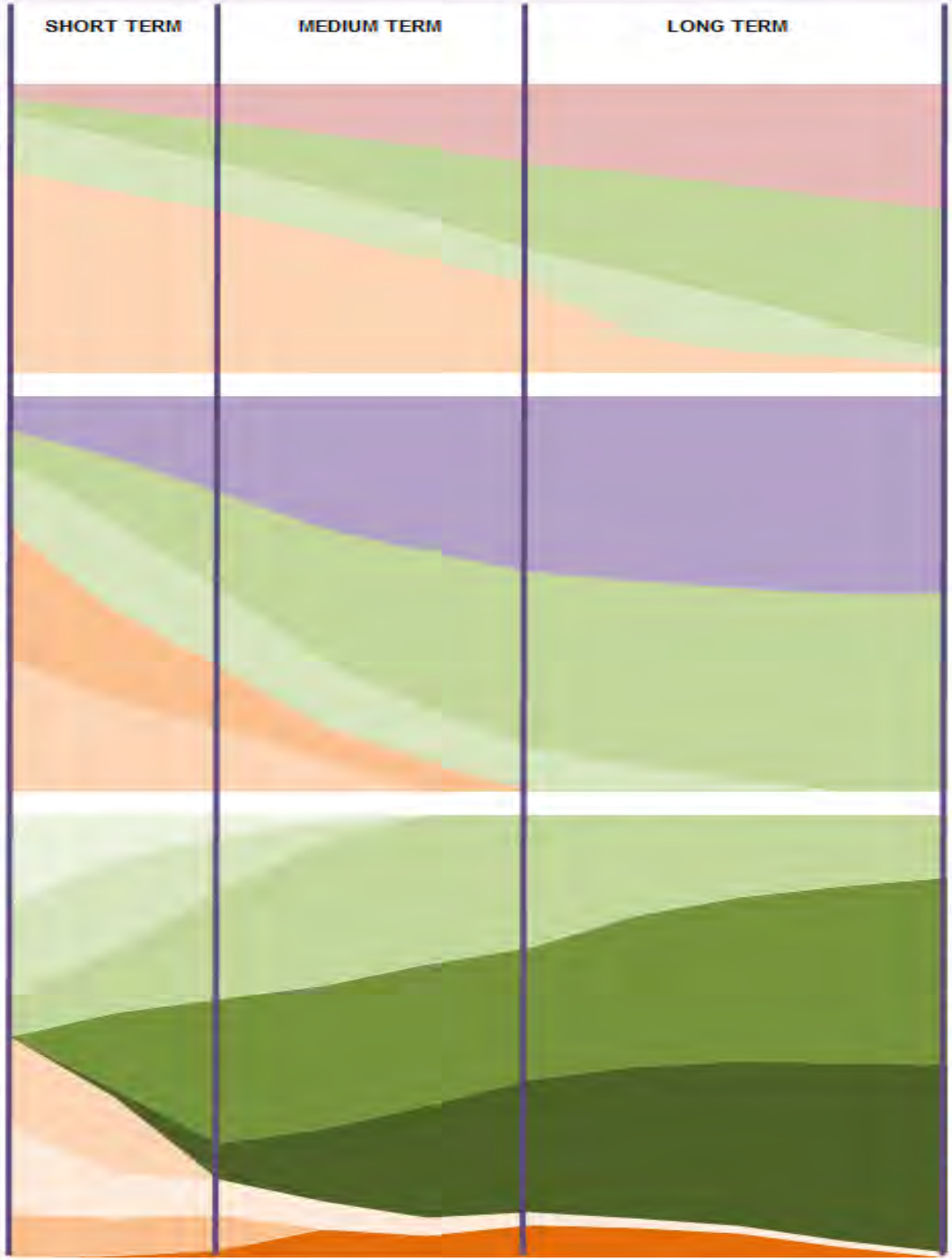
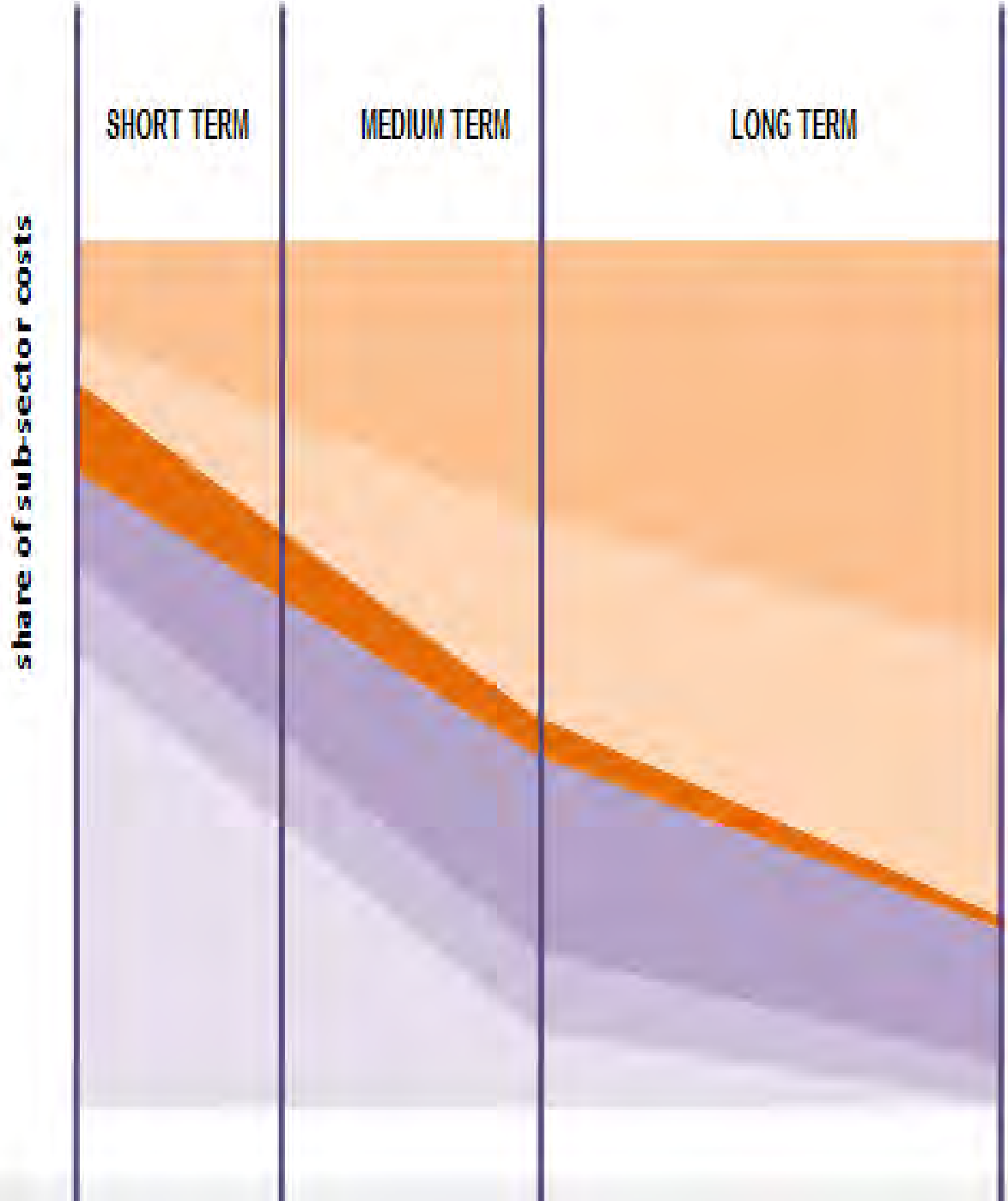
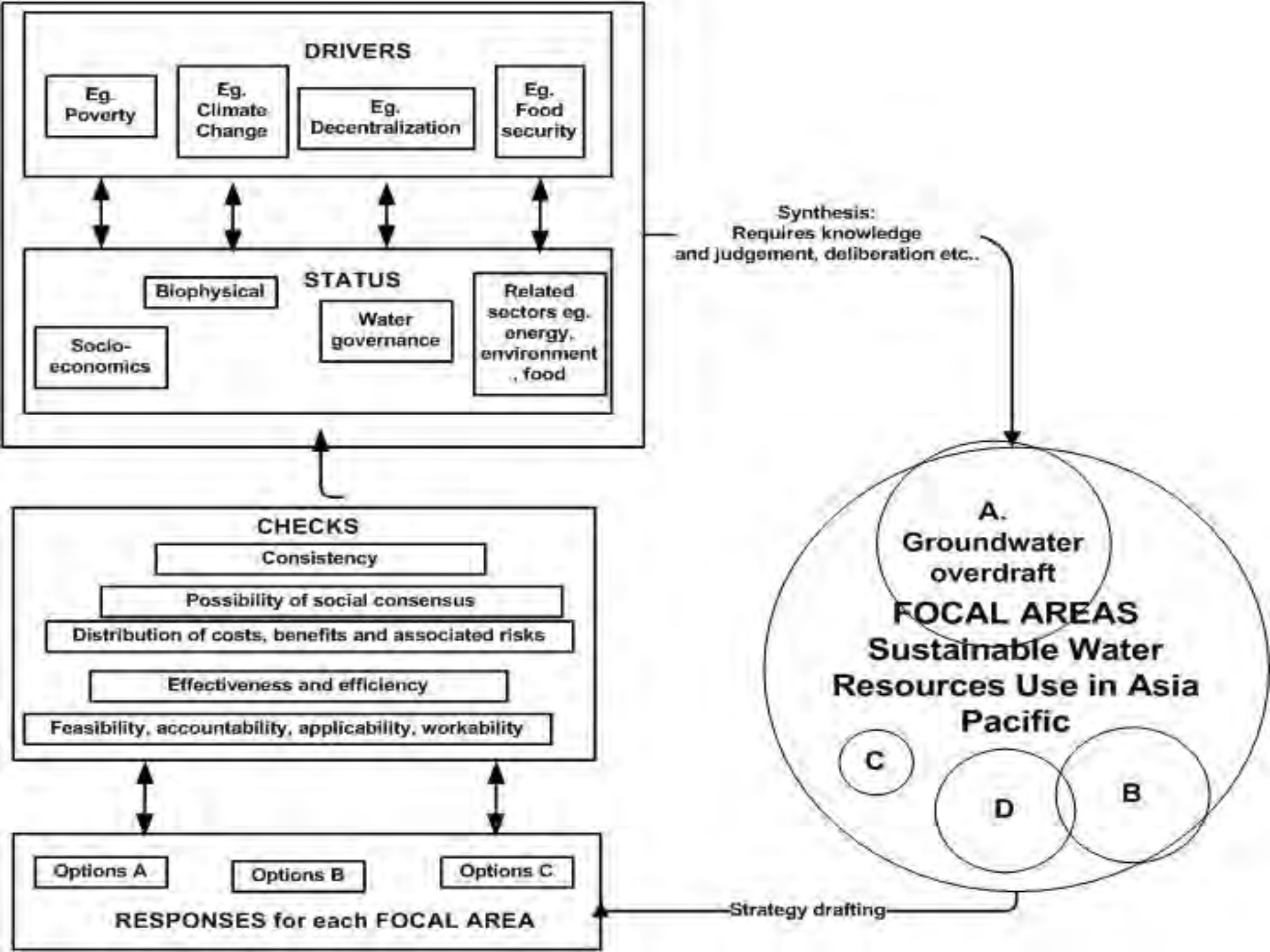


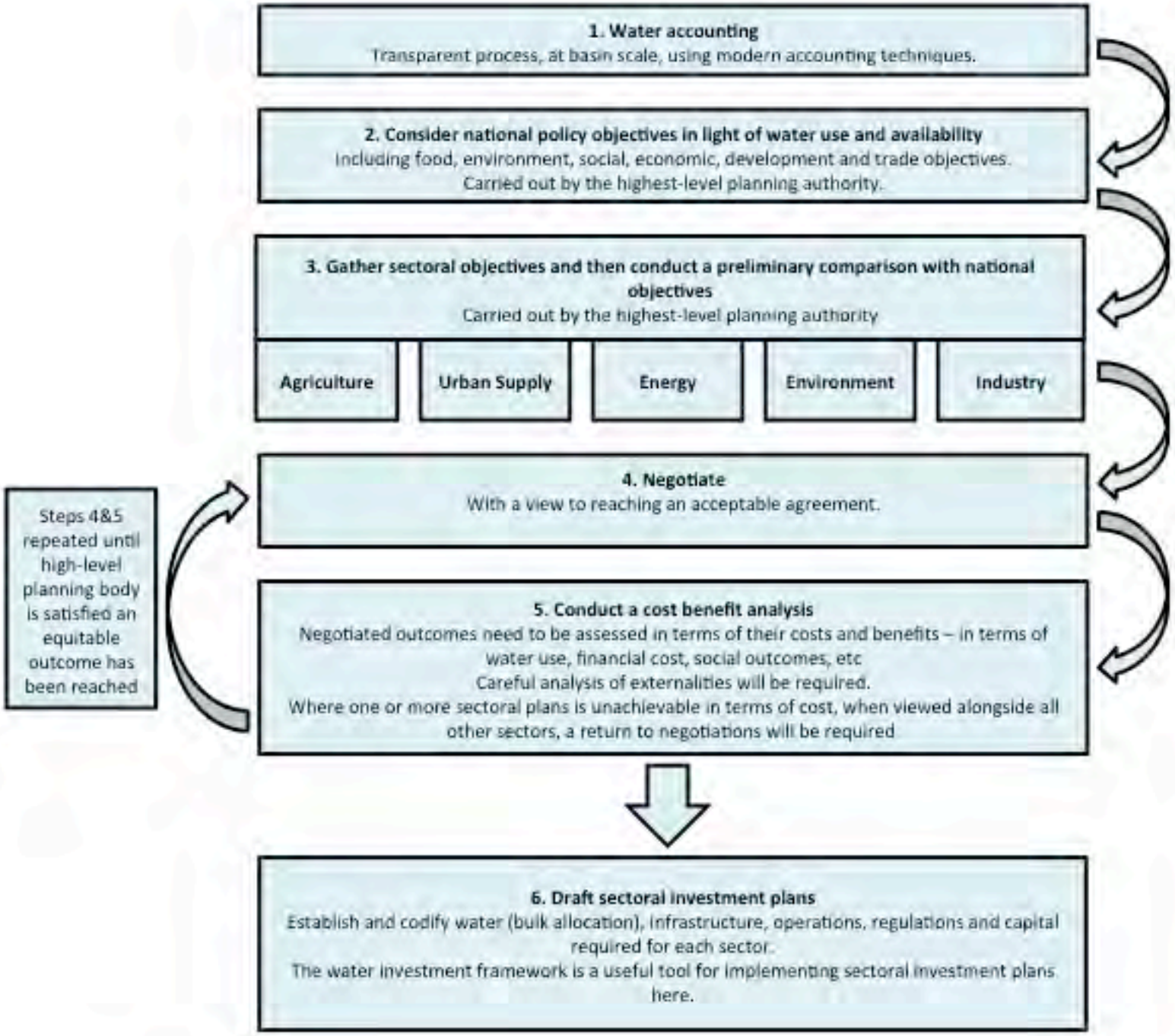
Planning: Generic Investment Framework

Planning: Generic Investment Framework



- Private Sector Recurring
- Beneficiaries Recurring
- Government Recurring
- Private Sector Capital (including NGOs)
- Beneficiaries Capital
- Government Capital (all sources, including river basin authorities)


DRIVERS
Eg. Poverty
Eg. Climate Change
Eg. Decentralization
Eg. Food security
STATUS
Biophysical
Socio-economics
Water governance
Related sectors eg. energy, environment, food
Synthesis:
Requires knowledge and judgement, deliberation etc..
CHECKS
Consistency
Possibility of social consensus
Distribution of costs, benefits and associated risks
Effectiveness and efficiency
Feasibility, accountability, applicability, workability
A. Groundwater overdraft
FOCAL AREAS
Sustainable Water Resources Use in Asia Pacific
C
D
B
Options A
Options B
Options C
RESPONSES for each FOCAL AREA
Strategy drafting


1. Water accounting
Transparent process, at basin scale, using modern accounting techniques.
2. Consider national policy objectives in light of water use and availability
Including food, environment, social, economic, development and trade objectives.
Carried out by the highest-level planning authority.
3. Gather sectoral objectives and then conduct a preliminary comparison with national objectives
Carried out by the highest-level planning authority
Agriculture
Urban Supply
Energy
Environment
Industry
4. Negotiate
With a view to reaching an acceptable agreement.
5. Conduct a cost benefit analysis
Negotiated outcomes need to be assessed in terms of their costs and benefits – in terms of water use, financial cost, social outcomes, etc
Careful analysis of externalities will be required.
Where one or more sectoral plans is unachievable in terms of cost, when viewed alongside all other sectors, a return to negotiations will be required
Steps 4&5 repeated until high-level planning body is satisfied an equitable outcome has been reached
6. Draft sectoral investment plans
Establish and codify water (bulk allocation), infrastructure, operations, regulations and capital required for each sector.
The water investment framework is a useful tool for implementing sectoral investment plans here.

Evolving a coherent, effective and feasible set of policies, strategies and interventions

- Solid water accounting foundation;
- Improved processes for decision-making and negotiation among stakeholders;
- Addressing the Water, Food, Energy and Climate nexus in an integrated approach;
- Risk management strategies for national food security policies;
- Progress on monitoring of investment and results.

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Explicitly addressing policy dilemmas, trade-offs and difficulties

- Managing transitions: resilience, transformation or exit strategies?
- Managing the informality of the water economies
- Economic water productivity vs. equity and other strategic goals
- National vs. local and river basin objectives
- “ideal” vs. Plan B and second-best options
- Realistic financial arrangements for water operators: smart subsidies?

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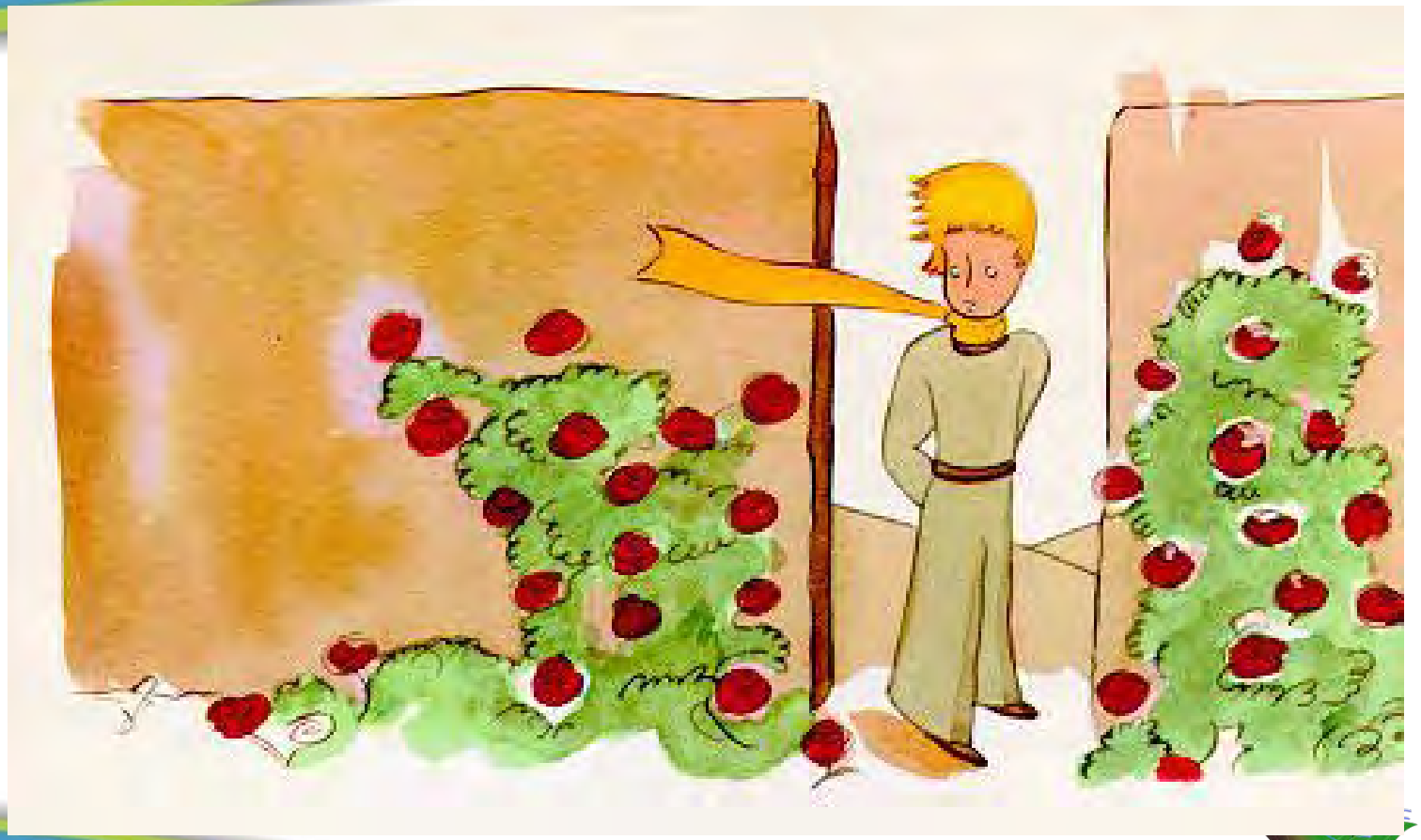

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