Diagnostic Tools for investment in agricultural water management

Maher Salman, Technical Adviser, Land and Water Division, FAO
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1. OVERVIEW: DIAGNOSTIC TOOLS FOR INVESTMENT IN WATER FOR AGRICULTURE
2. CONTEXT TOOL
3. INSTITUTIONAL AND POLICY TOOL
4. FINANCIAL TOOL
5. THE WEB PLATFORM – A DEMONSTRATION
6. CONCLUSIONS
1. OVERVIEW

DIAGNOSTIC TOOLS FOR INVESTMENT IN WATER FOR AGRICULTURE AND ENERGY
1.1. BACKGROUND

**Sirte Conference on “Water for Agriculture and Energy in Africa: The Challenges of Climate Change”**

- Financial Tool
- Context Tool
- National Investment Briefs

**TerrAfrica**

- Country Support Tool for Scaling-up Sustainable Land Management in Sub-Saharan Africa

**Sirte Follow-up actions**

- Financial Tool applied to Kenya, Egypt, Zambia
- Context Tool applied to Kenya, Egypt, Zambia
- Policy Tool applied to Kenya, Egypt, Zambia
1.2. ARCHITECTURE OF THE TOOL

National Investment Framework

- Context Tool
- Institutional and Policy Tool
- Financial Tool

Diagnostic Tools

- Institutional and Policy Diagnosis
- Financial Diagnosis
- National Investment Profiles

Literature and Experience

TerrAfrica approach, AgWA Partnership, NEPAD initiative, CAADP process, national policies, strategies, and programmes
1.2. THE THREE TOOLS

**CONTEXT TOOL**
- Summary of indicators (agriculture, irrigation, food security, food self-sufficiency, water resources, hydropower, etc.)
- Assessment of investment needs and investment potential

**INSTITUTIONAL AND POLICY TOOL**
- Mapping of institutions, actors, laws and policies
- Assessing the implementation and level of commitment
- Summary indicators
- Action matrix to recommend policy changes for water management

**FINANCIAL TOOL**
- Current trends in investments
- Realistic estimates of available means of finance
- Prioritization of investments
- Advice the formulation of National Investment Frameworks

CLOSELY INTERCONNECTED!
1.4. THE TOOLS IN ACTION

- Sirte, all Africa, only context and financial prototype tools
- Sirte follow-up: Egypt, Kenya, Zambia (financial and institutional & policy tool)
- Application in Tanzania and Nigeria (IFAD)
- Application in the Horn of Africa (USDS)
- Application in Egypt, Sudan, Malawi and Swaziland (FAO-COMESA)
2. CONTEXT TOOL

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2.1. STRUCTURE OF THE CONTEXT TOOL

CONCEPTUAL FRAMEWORK

CONTEXT INDICATORS

INVESTMENT NEED AND POTENTIAL INDICATORS

INVESTMENT NEED INDEX
INVESTMENT POTENTIAL INDEX

RADAR GRAPHS
2.3. CONTEXT INDICATORS

✓ The Context Tool indicators are classified in five categories:
   a. Agriculture
   b. Irrigation
   c. Food security, poverty and food self-sufficiency
   d. Water resources and hydropower
   e. Environment and Climate change

✓ Each of the categories has been further disaggregated in different indicators

✓ Indicators can be easily quantified based on national statistics and international databases
2.4. INVESTMENT NEED INDEX (INI)

- Measures country performance in access to electricity and food, dependence on agriculture, prevalence of rainfed agriculture
- The index is composed of six indicators:
  - Prevalence of undernourishment (%)
  - Average dependency ratio for three major staple crops (%)
  - Rural population over total population (%)
  - Non-equipped area for full control irrigation over total cultivated land (%)
  - Population without access to electricity over total population (%)
  - Electricity dependency ratio

- The geometric mean of the value of the indicators is the Need to Invest Index
- The greater Index, the higher the need for investment in water
2.5. INVESTMENT POTENTIAL INDEX (IPI)

- Measures the country’s potential in developing water resources for irrigation and hydropower
- The index is composed of five indicators
- The geometric mean of the value of the indicators is the Investment Potential Index
- The greater Index, the smaller the potential for investment in water
2.6. SUMMARY OF INDEXES

- The Investment Need (INI) and the Investment Potential (IPI) Indexes are of specific importance for time and country comparisons.

- Indexes can also be derived independently for agriculture and hydropower.

<table>
<thead>
<tr>
<th>Country</th>
<th>INI</th>
<th>IPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>55.40</td>
<td>40.69</td>
</tr>
<tr>
<td>Iran</td>
<td>13.54</td>
<td>57.77</td>
</tr>
</tbody>
</table>
3. INSTITUTIONAL AND POLICY TOOL
3.1. OVERVIEW

STEP 1 – MAPPING EXERCISE
Institutional setup, actors, laws, policies

STEP 2 – DIAGNOSTIC EXERCISE
Public budget analysis

STEP 3 – INSTITUTIONAL AND POLICY INDEX
Summary representation of relevant information

STEP 4 – ACTION MATRIX
Actions, responsibilities, policy & regulatory changes
### 3.2. MAPPING EXERCISE

<table>
<thead>
<tr>
<th>Key institutions and actors</th>
<th>Mandate</th>
<th>Level</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Water and Irrigation</td>
<td>National</td>
<td>Ministry of Agriculture</td>
<td>WAB, WSRB, WRMA, Irr. Board</td>
</tr>
<tr>
<td></td>
<td>Regional</td>
<td>Min. of Wat. &amp; Irrigation</td>
<td>WRMA</td>
</tr>
<tr>
<td></td>
<td>Province</td>
<td>Min. of Wat. &amp; Irrigation</td>
<td>Irr. Board</td>
</tr>
<tr>
<td></td>
<td>District</td>
<td>Min. of Wat. &amp; Irrigation</td>
<td>Irr. Board</td>
</tr>
<tr>
<td>Irrigation Board</td>
<td>Commune</td>
<td>Large scale private operat.</td>
<td>Water users associations</td>
</tr>
<tr>
<td></td>
<td>Village</td>
<td>Large scale private operat.</td>
<td>Water users associations</td>
</tr>
</tbody>
</table>

**Ministry of Water and Irrigation**
- Water resources development, management, protection; formulation, review, implementation of water sector policy.
- Policy-making; manage governance of subsidiary levels (including arid and semi arid lands Department); water quality control and water research.

**Irrigation Board**
- Develop and improve irrigated agriculture; facilitate participation of all stakeholders; improve existing irrigation and drainage activities.
- Coordinate construction and rehabilitation, O&M of national irrigation land; irrigation formulation and execution policy on irrigation schemes (with Water Resources Authority); research and training (irrigation efficiency, training WUA); irrigated agriculture extension services and cost recovery; increasing farmers participation; source funds for irrigation development.

WAB = Water Appeals Board; WSRB = Water Service Regulatory Board; WRMA = Water Resources Management Authority

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### 3.3. MAPPING EXERCISE

#### Legislation mapping

<table>
<thead>
<tr>
<th>Primary law</th>
<th>Objective</th>
<th>Specific targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Act of 2002</td>
<td>Overarching, comprehensive, reform of the water sector.</td>
<td>(i) Separation of management of water from provision of water services, creating specific agencies; (ii) separation of policy making from administration; (iii) involvement of non-government entities in both the management of water resources and the provision of water services.</td>
</tr>
</tbody>
</table>

#### Policy framework mapping

<table>
<thead>
<tr>
<th>Policy</th>
<th>Mandate</th>
<th>Specific policy objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Water Policy 1999</td>
<td>Redefine government’s role: from direct service provision to regulatory functions. Service provision would be left to municipalities, the private sector and communities.</td>
<td>Regulations to be introduced to give other institutions the legal mandate to provide both water services and mechanisms for regulation.</td>
</tr>
</tbody>
</table>
### 3.4. DIAGNOSTIC EXERCISE

- Political commitments / Policy objectives (matching)

- The goal of the evaluation of the public expenditure allocations comprises assessment of the:

<table>
<thead>
<tr>
<th>STRATEGIC PRIORITIES</th>
<th>EFFICIENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Investment priorities</td>
<td></td>
</tr>
<tr>
<td>• Political commitments</td>
<td></td>
</tr>
<tr>
<td>• Decentralization and participation</td>
<td></td>
</tr>
<tr>
<td>• Timely utilization of budgetary appropriations</td>
<td></td>
</tr>
</tbody>
</table>
3.5. INSTITUTIONAL AND POLICY INDEX

✓ The Institutional and Policy Index highlights the public and donor commitment to investment in water management for agriculture and hydropower.

✓ The Institutional and Policy Index is composed of six indicators:

- Irrigation projects budget in agricultural public budget (%);
- Irrigation projects budget in total public budget (%);
- Irrigation projects budget in total donor budget (%);
- Hydropower projects budget in energy public budget (%);
- Hydropower projects budget in total public budget (%);
- Hydropower projects budget in total donor budget (%).

✓ The greater the Index, the higher the commitment of public sector and donors towards water management.
The combination of the three indexes will provide a complete picture of the investment environment in a given country.
3.7. ACTION MATRIX

- Define actions, policy reforms, and investment plans.
- Identifies what different actors can do to improve inputs and outputs of the water sector.

<table>
<thead>
<tr>
<th>INSTITUTIONS &amp; ACTORS</th>
<th>OBJECTIVE</th>
<th>ACTIONS</th>
<th>SPECIFICATION OF ACTION AND RELATED PROCESSES</th>
<th>FURTHER POLICY &amp; REGULATORY CHANGES NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of water and irrigation (MWI)</td>
<td>Capitalize on increased investment to the sector</td>
<td>Personnel strengthening and full implementation of the new MWI Human Resource Management</td>
<td>Include: support to internal “groups of reformers” sanctions against rent seeking, performance-based benefit is to key staff</td>
<td>Adapt government’s Results Based Management initiative to the water sector needs.</td>
</tr>
<tr>
<td></td>
<td>Enhance MWI role of coordination and advocacy for the sector</td>
<td>Introduce strategic Financing Framework, a mechanism for systematic resources mobilization and sound financial planning</td>
<td>In cooperation with NIB and in line with new Irrigation policy, and beyond Treasury transfers.</td>
<td>Enhance private sector participation but avoid long term financing burdens resting on public sector balance sheets</td>
</tr>
</tbody>
</table>
4. FINANCIAL TOOL

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4.1. OVERVIEW

✓ OBJECTIVE

To provide reliable and project-based estimates of investment needs in the agricultural water and hydropower realm over time

✓ STRUCTURE

• Inputs

• Calculation algorithms for the derivation of:
  – Investment envelope;
  – Internal rate of return (IRR);

• Overall view of investments by project typology and time horizon

✓ INTERFACE

Web-based platform for data entry and output calculation

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# 4.2. Inputs

<table>
<thead>
<tr>
<th>Level</th>
<th>Category</th>
<th>Agriculture Projects</th>
<th>Hydropower Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Tier: essential</strong></td>
<td>Project characteristics</td>
<td>Beginning year of the project / End year of the project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Investment cost</td>
<td>Total investment cost / The currency adopted / The relevance of the water component</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of project</td>
<td>Small-scale irrigation development</td>
<td>Small-and medium-scale hydropower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rehabilit. &amp; moderniz. of irrigation</td>
<td>Rehabilitation of dams and hydropower plants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large-scale irrigation development</td>
<td>Large-scale hydropower development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others (specify)</td>
<td></td>
</tr>
<tr>
<td><strong>Second Tier: financial</strong></td>
<td>Project characteristics</td>
<td>Total hectares of land</td>
<td>Installed capacity of the hydropower facility measured in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dominant food and cash crop</td>
<td>Megawatts</td>
</tr>
<tr>
<td></td>
<td>Costs of production and prices</td>
<td>Currency used / Reference year</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yields (ton/ha) for the main crops</td>
<td>Average running cost for hydropower plants in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Retail prices for the main crops</td>
<td>country (currency/MW)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average production cost for the main crops, including maintenance</td>
<td>Average price of power (currency/MW)</td>
</tr>
<tr>
<td><strong>Third Tier: accuracy</strong></td>
<td>Project characteristics</td>
<td>Hectares of land under irrigation or rehabilitated by crop</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Investment cost</td>
<td>Total yearly investment cost over the time scale of the project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Funding Partners</td>
<td>Total investment cost by partner disaggregated into public, private (including</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>beneficiaries) and donors</td>
<td></td>
</tr>
</tbody>
</table>
### 4.3. INVESTMENT ENVELOPE

<table>
<thead>
<tr>
<th>TIME FRAME</th>
<th>Small-scale irrigation</th>
<th>Rehabilitation and modernization of irrigation</th>
<th>Large-scale irrigation</th>
<th>Small-and medium-scale hydropower</th>
<th>Rehabilitation of dams and hydropower plants</th>
<th>Large-scale hydropower</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term</td>
<td>602</td>
<td>538</td>
<td>632</td>
<td>421</td>
<td>10</td>
<td>5,184</td>
<td>283</td>
<td>7,670</td>
</tr>
<tr>
<td>Medium-term</td>
<td>209</td>
<td>211</td>
<td>248</td>
<td>0</td>
<td>0</td>
<td>2,049</td>
<td>131</td>
<td>2,847</td>
</tr>
<tr>
<td>Long-term</td>
<td>32</td>
<td>26</td>
<td>86</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>180</td>
</tr>
<tr>
<td>Total</td>
<td>843</td>
<td>775</td>
<td>966</td>
<td>421</td>
<td>10</td>
<td>7,323</td>
<td>450</td>
<td>10,698</td>
</tr>
</tbody>
</table>
4.4. INTERNAL RATE OF RETURN (IRR)

- The internal rate of return is the interest rate corresponding to a 0 (zero) Net Present Value

\[ NPV = \sum_{n=1}^{N} \frac{C_n}{(1+r)^n} \]

- The IRR is derived from the sum of the cash flows calculated for the implementation and operation period of the project

- The costs and benefits that accrue from the operation of the project are taken into account in the IRR

- The IRR is calculated for each project and analysis for the various types of projects is conducted
4.5. SELECTED VIEWS ON INVESTMENT

Share of cost by type: Ongoing Projects (mln US$)

- Small-scale irrigation development: 143.1 (20.4%)
- Rehabilitation and modernization of irrigation scheme: 48.6 (6.9%)
- Large-scale irrigation development: 206.1 (29.4%)
- Small-and medium-scale hydropower: 2.3 (0.3%)
- Rehabilitation of dams and hydropower plants: 262.4 (37.4%)
- Large-scale hydropower development: 38.2 (5.4%)
- Other (Agri): 20.4%

Total cost: 723.2 (100%)

Share of cost by type: Pipeline Projects (mln US$)

- Small-scale irrigation development: 699 (7.9%)
- Rehabilitation and modernization of irrigation scheme: 775 (7.2%)
- Large-scale irrigation development: 966 (9.0%)
- Small-and medium-scale hydropower: 421 (3.9%)
- Rehabilitation of dams and hydropower plants: 10 (0.1%)
- Large-scale hydropower development: 450 (4.2%)
- Other (Agri): 699 (4.1%)

Total cost: 723.2 (100%)

Legend:
- Small-scale irrigation development
- Rehabilitation and modernization of irrigation scheme
- Large-scale irrigation development
- Small-and medium-scale hydropower
- Rehabilitation of dams and hydropower plants
- Large-scale hydropower development
- Other
4.5. SELECTED VIEWS ON INVESTMENT

Share of cost by funding:
Ongoing Projects (mln US$)

- Public (US$ million): 2,499 (66%)
- Private (US$ million): 1,143 (30%)
- Donors (US$ million): 153 (4%)

Share of cost by funding:
Pipeline Projects (mln US$)

- Public (US$ million): 2,372 (58%)
- Private (US$ million): 1,260 (31%)
- Donors (US$ million): 446 (11%)

Share of cost by funding:
Future (mln US$)

- Public (US$ million): 4,871 (62%)
- Private (US$ million): 2,403 (30%)
- Donors (US$ million): 599 (8%)
4.5. SELECTED VIEWS ON INVESTMENT

Cropping pattern (percentage of total hectares)

<table>
<thead>
<tr>
<th>Crop</th>
<th>On-Going</th>
<th>Pipeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>31.4</td>
<td>22.9</td>
</tr>
<tr>
<td>Rice</td>
<td>21.6</td>
<td>63.1</td>
</tr>
<tr>
<td>Sorghum</td>
<td>2.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td>3.2</td>
<td>129.0</td>
</tr>
<tr>
<td>Vegetables</td>
<td>37.6</td>
<td>27.4</td>
</tr>
<tr>
<td>Potato</td>
<td>3.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Banana</td>
<td>10.2</td>
<td>10.4</td>
</tr>
<tr>
<td>Cotton</td>
<td>6.8</td>
<td>72.0</td>
</tr>
</tbody>
</table>
5. THE WEB PLATFORM: A DEMONSTRATION
5. THE WEB PLATFORM

- FAO grants access
- FAO can modify data
- FAO performs accuracy check on the data
- Password protected
- Simple user interface and instruction manual
- The user/s can visualize, export, and save data and output
5. THE WEB PLATFORM

**Financial, Institutional and Policy**
Diagnostic tool for investment in water for agriculture and energy

**Context tool**
This tool provides a set of indicators that help understand the need as well as the potential to invest in the development of water and energy resources for food and energy production within a country.

**Institutional and Policy Tool**
This tool facilitates the identification of practical ways forward that reflect the institutional, legal and policy realities of a country and provides a more solid base for policy and investment design and implementation.

**Financial tool**
This tool provides reliable and project-based estimates of on-going and planned investment in the development of water resources for food and energy production in the short, medium and long term within a country.

*Water* is one of the key resources for agriculture and energy production and the possibility of harnessing its vast potential would markedly contribute towards food and energy security. Reaching these goals, however, requires a deep understanding of the current situation at country level including the use of water resources, the legal, policy, and institutional frameworks governing the management of water resources, and the level of public and private investments for the development and management of water for agriculture and energy production.
### Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

#### CONTEXT TOOL

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Year(s)</th>
<th>Value</th>
<th>Unit</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, value added to GDP</td>
<td>2003</td>
<td>8.67</td>
<td>% of GDP</td>
<td>World Bank (World Development Indicators)</td>
</tr>
<tr>
<td>Total economically active population in agriculture over total economically active population</td>
<td>2012</td>
<td>4.93</td>
<td>%</td>
<td>FAOSTAT (Population)</td>
</tr>
<tr>
<td>Rural population over Total population</td>
<td>2012</td>
<td>33.96</td>
<td>%</td>
<td>FAOSTAT (Population)</td>
</tr>
<tr>
<td>Cultivated land [Arable land + Permanent crops]</td>
<td>2009</td>
<td>23486.00</td>
<td>1000 ha</td>
<td>FAOSTAT (Resources)</td>
</tr>
<tr>
<td>Crop yield of five main crops (sorted by production quantity in the country)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>2011</td>
<td>19552.28</td>
<td>hg/ha</td>
<td>FAOSTAT (Production-Crops)</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>2011</td>
<td>173575.57</td>
<td>hg/ha</td>
<td>FAOSTAT (Production-Crops)</td>
</tr>
<tr>
<td>Barley</td>
<td>2011</td>
<td>11414.00</td>
<td>hg/ha</td>
<td>FAOSTAT (Production-Crops)</td>
</tr>
<tr>
<td>Potatoes</td>
<td>2011</td>
<td>137820.44</td>
<td>hg/ha</td>
<td>FAOSTAT (Production-Crops)</td>
</tr>
<tr>
<td>Cucumbers and gherkins</td>
<td>2011</td>
<td>94331.18</td>
<td>hg/ha</td>
<td>FAOSTAT (Production-Crops)</td>
</tr>
</tbody>
</table>
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

CONTEXT TOOL

Investment Need Index (INI)

<table>
<thead>
<tr>
<th>Country</th>
<th>INI-Agriculture</th>
<th>INI-Hydropower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iraq</td>
<td>Not calculated</td>
<td>Not calculated</td>
</tr>
</tbody>
</table>

Investment Potential Index (IPI)

<table>
<thead>
<tr>
<th>Country</th>
<th>IPI-Agriculture</th>
<th>IPI-Hydropower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iraq</td>
<td>69.81</td>
<td>Not calculated</td>
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</table>
5. THE WEB PLATFORM
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

![Image of the Financial Tool interface](image)

### Financial Tool

**Name**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirkuk Irrigation Project</td>
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</tbody>
</table>

#### Project data

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>no data</td>
<td></td>
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</tbody>
</table>

#### Crop data

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data</td>
<td></td>
</tr>
</tbody>
</table>

#### Hydropower data

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data</td>
<td></td>
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</table>

#### Reports

<table>
<thead>
<tr>
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<th>Description</th>
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</thead>
<tbody>
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</tbody>
</table>

#### General Information

<table>
<thead>
<tr>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data</td>
<td></td>
</tr>
</tbody>
</table>

#### Funding Information

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>no data</td>
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</table>

#### Project shares

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>no data</td>
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#### Crops

<table>
<thead>
<tr>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>no data</td>
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</tr>
</tbody>
</table>

**Next >>**
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

Project data  Crop data  Hydropower data  Reports

Name
Total cost  no data  million
Currency  no data  ISO 4217
Private Sector  no data  million - Funds provided by the private sector
Public  no data  million - Funds provided by public sector
Donors  no data  million - Funds provided by donors

Next
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

Financial Tool

- Project data
- Crop data
- Hydropower data
- Reports
- General information
- Funding information
- Project shares
- Crops

Name
- Total cost
- Currency
- Private Sector
- Public
- Donors

Description
- million
- ISO 4217
- million - Funds provided by the private sector
- million - Funds provided by public sector
- million - Funds provided by donors
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevance number</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Small-scale irrigation development</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Rehabilitation and modernization of irrigation scheme</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Large Scale Irrigation development</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Small and medium scale hydropower</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Rehabilitation of dams and hydropower plants</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Other (Agri)</td>
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<td></td>
</tr>
<tr>
<td>Large Scale hydropower development</td>
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</table>

Next ➤
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

Project data  Crop data  Hydropower data  Reports

General information  Funding information  Project shares  Crops

Add Crop

Select a crop  Number

Insert a crop from the Crop data list  no data

Insert a crop  Beans  no data

Crops

Crop Name  Ha

Save Project
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

Add Crop

Select a crop | Ha
---|---
no data | no data
no data | no data

Crops

<table>
<thead>
<tr>
<th>Crop Name</th>
<th>Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans</td>
<td>5</td>
</tr>
</tbody>
</table>

Save Project
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

Add Crop

<table>
<thead>
<tr>
<th>Select a crop</th>
<th>Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data</td>
<td>no data</td>
</tr>
</tbody>
</table>

Crops

<table>
<thead>
<tr>
<th>Crop Name</th>
<th>Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans</td>
<td>5</td>
</tr>
<tr>
<td>Carrots/lunips</td>
<td>10</td>
</tr>
<tr>
<td>Barley</td>
<td>20</td>
</tr>
<tr>
<td>Wheat</td>
<td>50</td>
</tr>
</tbody>
</table>

[Save Project]
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

Crop Name
Yield: 20
Currency: no data
Cost: no data
Cost Reference Year: no data
Price: no data
Price Reference Year: no data
Type: Staple or cash dominant

Update Crop
5. THE WEB PLATFORM

Financial, Institutional and Policy
Diagnostic tool for investment in water for agriculture and energy

FINANCIAL TOOL

<table>
<thead>
<tr>
<th>Project data</th>
<th>Crop data</th>
<th>Hydropower data</th>
<th>Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currency</td>
<td>Reference Year</td>
<td>Small/Medium</td>
<td>Rehabilitation</td>
</tr>
<tr>
<td>Production costs</td>
<td>no data</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td>Price</td>
<td>no data</td>
<td>no data</td>
<td>no data</td>
</tr>
</tbody>
</table>
5. THE WEB PLATFORM

GETTING THE OUTPUTS

FINANCIAL TOOL

Diagnostic tool for investment in water for agriculture and energy

Project data  Crop data  Hydropower data  Reports

Project list  Investment envelope  Internal Rate of Return  Investment by type  Contribution  Cost Distribution

Hectars developed  Descriptives

Selection function

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Type</th>
<th>Total Cost (Million USD)</th>
<th>Update Time</th>
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</thead>
<tbody>
<tr>
<td>46</td>
<td>Bahka Dam</td>
<td>On-Going</td>
<td>275518.0</td>
<td>17/09/2013, 09:53</td>
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<tr>
<td>47</td>
<td>Darbandikhan Dam</td>
<td>On-Going</td>
<td>12000.0</td>
<td>24/09/2013, 11:11</td>
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<tr>
<td>48</td>
<td>Mosul Dam</td>
<td>On-Going</td>
<td>5000000.0</td>
<td>17/09/2013, 10:05</td>
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<tr>
<td>49</td>
<td>Dukan Dam</td>
<td>On-Going</td>
<td>1028.0</td>
<td>17/09/2013, 10:08</td>
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<tr>
<td>50</td>
<td>Dohuk Dam</td>
<td>On-Going</td>
<td>3000.0</td>
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<tr>
<td>51</td>
<td>Haditha Dam</td>
<td>On-Going</td>
<td>4000.0</td>
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<tr>
<td>52</td>
<td>Hamrin Dam</td>
<td>On-Going</td>
<td>3000.0</td>
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<tr>
<td>53</td>
<td>Aladeem Dam</td>
<td>On-Going</td>
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<tr>
<td>54</td>
<td>East Gharrif</td>
<td>On-Going</td>
<td>975000.0</td>
<td>17/09/2013, 10:17</td>
</tr>
</tbody>
</table>
5. THE WEB PLATFORM

Getting the outputs
5. CONCLUSIONS
CONCLUSIONS

✓ A comprehensive Toolbox for the:
  • analysis of the water use patterns at country level
  • systematic study of the policy and institutional frameworks
  • Definition of investment needs in water for agriculture and energy
  • Definition of project and overall rates of return and analysis of cost distribution

✓ Direct support to policy consultations and ready to use by decision makers
CONCLUSIONS

✓ Easy to use and update thanks to the web platform interface

✓ Immediate outputting of easily understandable results and possibility to update inputs at any time

✓ Alignment with national and regional initiatives: no duplication, but integration!
ACKNOWLEDGEMENTS

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- MS. ALBA MARTINEZ SALAS
- MS. ELISA LORENZON
- MS. LEONORA LORENA

TEAMS IN COUNTRIES OF APPLICATION

- EGYPT, KENYA, MALAWI, NIGERIA, SOUTH SUDAN, SUDAN, SWAZILAND, TANZANIA, UGANDA, ZAMBIA

Maher Salman, Technical Adviser, Land and Water Division, FAO
THANK YOU FOR YOUR ATTENTION!!

TEŞEKKÜRLER!

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Maher.Salman@fao.org