Trade and Food Security

Water- Agriculture- Trade Nexus:
When Self-sufficiency is not an Option

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WATER-AGRICULTURE-TRADE NEXUS

WATER

AGRICULTURE

TRADE

Mohamed AITKADI GWP/TEC
Self-Sufficiency = An elusive target
Comparing regional long term perspectives

Note: Area harvested in 2004. Arable land in equivalent potential.
Asia will be a major importer (China)
WANA also;
SSA could feed itself with a low increase of per capita food ratio;
Latin America will be a major exporter (Brazil, Argentina) but with important ecological risks
Canada and Russia could benefit from climate change and increase their export capacity
USA and EU could increase also but in weak proportions

>>> Food self-sufficiency is not a viable option

M. AIT-KADI
Cereals imports of developing regions

Historical Development

1970-2030

Projections

East Asia
South Asia
Near East/North Africa
Latin America
S.S.Africa

Source: FAO, 2002


« Toute chose étant aidée et aidante, causée et causante, je tiens pour impossible de connaître le tout sans connaître les parties et de connaître les parties sans connaître le tout .. »

- Demography/Urbanization
- Economic
- Social
- Institutions/Governance
- Technology
- Solidarity

WATER-AGRICULTURE-TRADE NEXUS
With its heavy dependence on imports of wheat, maize, oilseeds and energy for domestic consumption Morocco has been severely hit by rising world food and oil prices. This has raised serious concerns about food security, macroeconomic and social stability.
The share of food imports in total imports has come up from 7.3% in 2006 to 10.3% in 2007.

The rate of coverage of food imports by exports declined substantially in one year dropping from 137% to 83%.

The trade deficit grew by 40.8% and represented nearly 23% of GDP.

The current account showed, for the first time in 6 years, a deficit of about 0.1% in GDP.
Impacts and mitigation measures

SUBDIZATION FUND EXPENDITURES (MDH)

-5000
0
5000
10000
15000
20000
25000
30000
35000
40000

2002 2003 2004 2005 2006 2007 2008

MDH
Total
Oil products
Food products
Water resources endowment/distribution

Renewable Water Resources (m³/ha/year):

- River Basins
  - 1: 1190
  - 2: 853
  - 3: 1045
  - 4: 141
  - 5: 856
  - 6: 512
  - 7: 418
  - 8: 1144
  - 9: 161

Total: 730 m³/ha/year

Deficit/surplus (Mm³):

- River Basins
  - 1: -96
  - 2: -219
  - 3: 1068
  - 4: -35
  - 5: -1468
  - 6: -163
  - 7: -126
  - 8: 11
  - 9: -4

-1468 Mm³

Water resources endowment/distribution
Morroco’s Water Issues & Constraints

- Water demand is growing fast;
- Water availability is falling to crisis levels;
- Overexploitation of groundwater
- Shortages are compounded by pollution
- Low water use efficiency in irrigation;
- Etc.
Key Questions

- How much more irrigation does Morocco need to meet the future needs of a growing population?
- Does the import of food “virtual water” support food security and a more equitable and efficient allocation of water?
- How to restructure consumption patterns from the present wasteful low value water intensive uses? What will the side effects on the rural community be by transferring water to cities? And what are the implications for food security?
- How can farmers achieve a higher livelihood from every drop of water?
Imports = 6 Km3

Exports = 0.850 Km3
SIZE IS THE MAIN DIFFERENTIATING FACTOR AMONGST PRODUCERS

Correlation between the size of farms and performance
Example of citrus cultivation

<table>
<thead>
<tr>
<th>Total performance (sales)</th>
<th>Income per hectare MAD/ha</th>
<th>Income per m² of water consumed MAD/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large farms</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>Average-sized farms</td>
<td>27</td>
<td>8.6</td>
</tr>
<tr>
<td>Small farms</td>
<td>40</td>
<td>1.5</td>
</tr>
<tr>
<td>Small farms</td>
<td>27</td>
<td>3.4</td>
</tr>
<tr>
<td>Mono-agriculture (food)</td>
<td>15</td>
<td>1.5</td>
</tr>
</tbody>
</table>

- Large farms tend to be the most productive
- The difference in performance can be explained as much by crop productivity as by the average sales price, which is primarily a function of how much of production is exported

<table>
<thead>
<tr>
<th>Main drivers</th>
<th>Crop productivity t/ha</th>
<th>Water consumption 1000 m³/ha</th>
<th>Average sales price* MAD/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large farms</td>
<td>15</td>
<td>30</td>
<td>2 (60%)</td>
</tr>
<tr>
<td>Average-sized farms</td>
<td>20</td>
<td>7</td>
<td>2 (30%)</td>
</tr>
<tr>
<td>Small farms</td>
<td>25</td>
<td>8</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Small farms</td>
<td>20</td>
<td>8</td>
<td>1 (0%)</td>
</tr>
<tr>
<td>Mono-agriculture (food)</td>
<td>15</td>
<td>10</td>
<td>1 (x2)</td>
</tr>
</tbody>
</table>

* Local sales price MAD1-1.2/kg; export price MAD2.5/kg
Agriculture a positive driver of socio-economic development & environmental sustainability

Pillar II
Smallholder farming as a business

Pillar I
Robust commercial Agriculture

Holistic/transactional Approach

Cross cutting Reforms + Enabling Environment

<table>
<thead>
<tr>
<th>Land tenure</th>
<th>Water</th>
<th>Trade</th>
<th>Domestic Market</th>
<th>Doing business</th>
<th>Value Chains</th>
<th>Administration</th>
</tr>
</thead>
</table>
Building on Successes

MOROCCAN SUCCESS STORIES DOMESTICALLY AND OVERSEAS

Examples

Economic

Export

Main purpose

Opportunity

Social

Domestic

Improvement in farming income

Financial and managerial investment

Sector organisation / aggregation

Improve in productivity / Value added
Contract farming and horizontal coordination

Model 1

- Big producer
- Medium
- Medium
- Food processor
- Dynamic markets – exports, supermarkets, etc

Model 2

- Cooperative of associations
- Dynamic markets – exports, supermarkets, etc
- Asoc 1
- Asoc 2
- Asoc 3
- Small

Contract farming and horizontal coordination
WHAT SHOULD BE DONE?

- Create the capacity to strategically advance and promote national comparative advantage and competitiveness

- Establish an appropriate policy framework and supportive linkages between sectors to ensure maximum effectiveness of development efforts

- Develop necessary management and marketing skills and support services to enhance local development opportunities

- Develop dynamic market systems and complementary infrastructure services
- Create market-driven technologies for achieving growth
- Utilize national resource management practices to enhance sustainable use
- Develop alternative investment, growth and welfare strategies to expend rural well-being
RESPONSABILITIES OF DEVELOPED COUNTRIES

- Greater market access
- Eliminate trade-distorting domestic supports
- Increase financial assistance to agricultural and rural development
- Facilitate technology transfer