IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-46680)

ON A

LOAN

IN THE AMOUNT OF US$5.00 MILLION

TO THE

HASHEMITE KINGDOM OF JORDAN

FOR A

HORTICULTURAL EXPORT PROMOTION AND TECHNOLOGY TRANSFER
PROJECT

July 28, 2008

Sustainable Development Department
Middle East and North Africa Region
CURRENCY EQUIVALENTS

(Exchange Rate Effective April 25, 2008)

Currency Unit = Jordanian Dinar
JD 0.7 = US$1.0
US$1.4 = JD 1.0

FISCAL YEAR
January 1 - December 1

ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ASAL</td>
<td>Agriculture Sector Adjustment Loan</td>
</tr>
<tr>
<td>AMD</td>
<td>Agricultural Marketing Department</td>
</tr>
<tr>
<td>BDU</td>
<td>Business Development Unit</td>
</tr>
<tr>
<td>CAS</td>
<td>Country Assistance Strategy</td>
</tr>
<tr>
<td>CRGF</td>
<td>Competitive Research Grant Fund</td>
</tr>
<tr>
<td>EPD</td>
<td>Export Promotion and Development</td>
</tr>
<tr>
<td>ERR</td>
<td>Economic Rate of Return</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>EurepGAP</td>
<td>Euro Retailers Produce-Good Agriculture Practices</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>FMRs</td>
<td>Financial Monitoring Reports</td>
</tr>
<tr>
<td>GAP</td>
<td>Good Agricultural Practice</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GOJ</td>
<td>Government of Jordan</td>
</tr>
<tr>
<td>ha</td>
<td>hectare</td>
</tr>
<tr>
<td>HEF</td>
<td>Horticultural Export Fund</td>
</tr>
<tr>
<td>HEPTTP</td>
<td>Horticultural Exports Promotion and Technology Transfer Project</td>
</tr>
<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>IRR</td>
<td>Internal Rate of Return</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organization</td>
</tr>
<tr>
<td>ISRs</td>
<td>Implementation Completion and Results Report</td>
</tr>
<tr>
<td>ITC</td>
<td>International Trade Center</td>
</tr>
<tr>
<td>JD</td>
<td>Jordanian Dinars</td>
</tr>
<tr>
<td>JE</td>
<td>Jordan Enterprise</td>
</tr>
<tr>
<td>JEDCO</td>
<td>Jordan Export Development and Commercial Centers Corporation</td>
</tr>
<tr>
<td>JEPA</td>
<td>Jordan Exporters and Producers Association</td>
</tr>
<tr>
<td>JEPAFV</td>
<td>Jordan Exporters and Producers Association for Fruits and Vegetables</td>
</tr>
<tr>
<td>kg</td>
<td>Kilogram</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicators</td>
</tr>
<tr>
<td>LIL</td>
<td>Learning and Innovation Loan</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MOA</td>
<td>Ministry of Agriculture</td>
</tr>
</tbody>
</table>
MOF  Ministry of Finance
MOPIC  Ministry of Planning and International Cooperation
MT  Metric Ton
MTR  Mid-Term Review
NCARE  National Center for Agricultural Research and Extension
NCARTT  National Center for Agricultural Research and Technology Transfer
NPV  Net Present Value
PAD  Project Appraisal Document
PCU  Project Coordination Unit
PDO  Project Development Objective
PPD  Plant Protection Department
RJA  Royal Jordanian Airlines
SMPA  Subject-matter Professional Associations
TIC  Technical Implementation Committee
TTS  Technology Transfer Specialist

Vice President: Daniela Gressani
Country Director: Hedi Larbi
Sector Manager: Luis F. Constantino
Project Team Leader: Nabil M. Chaherli
ICR Team Leader: Nabil M. Chaherli
# Hashemite Kingdom of Jordan
## Horticultural Export Promotion and Technology Transfer Project

**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Basic Information</td>
<td>i</td>
</tr>
<tr>
<td>B. Key Dates</td>
<td>i</td>
</tr>
<tr>
<td>C. Ratings Summary</td>
<td>i</td>
</tr>
<tr>
<td>D. Sector and Theme Codes</td>
<td>ii</td>
</tr>
<tr>
<td>E. Bank Staff</td>
<td>ii</td>
</tr>
<tr>
<td>F. Results Framework Analysis</td>
<td>iii</td>
</tr>
<tr>
<td>G. Ratings of Project Performance in ISRs</td>
<td>vi</td>
</tr>
<tr>
<td>H. Restructuring (if any)</td>
<td>vi</td>
</tr>
<tr>
<td>I. Disbursement Profile</td>
<td>vii</td>
</tr>
<tr>
<td>1. Project Context, Development Objectives and Design</td>
<td>1</td>
</tr>
<tr>
<td>2. Key Factors Affecting Implementation and Outcomes</td>
<td>5</td>
</tr>
<tr>
<td>3. Assessment of Outcomes</td>
<td>10</td>
</tr>
<tr>
<td>4. Assessment of Risk to Development Outcome</td>
<td>14</td>
</tr>
<tr>
<td>5. Assessment of Bank and Borrower Performance</td>
<td>15</td>
</tr>
<tr>
<td>6. Lessons Learned</td>
<td>18</td>
</tr>
<tr>
<td>7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners</td>
<td>22</td>
</tr>
<tr>
<td>Annex 1: Project Costs and Financing</td>
<td>23</td>
</tr>
<tr>
<td>Annex 2: Output by Components</td>
<td>24</td>
</tr>
<tr>
<td>Annex 3: Economic and Financial Analysis</td>
<td>31</td>
</tr>
<tr>
<td>Annex 4: Bank Lending and Implementation Support/Supervision Processes</td>
<td>36</td>
</tr>
<tr>
<td>Annex 5: Beneficiary Survey Results</td>
<td>38</td>
</tr>
<tr>
<td>Annex 6. Summary of Borrower’s ICR and/or Comments on Draft ICR</td>
<td>41</td>
</tr>
<tr>
<td>Annex 6: Comments of Co-Financiers and Other Partners/Stakeholders</td>
<td>65</td>
</tr>
<tr>
<td>Annex 7: List of Supporting Documents</td>
<td>66</td>
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A. Basic Information

<table>
<thead>
<tr>
<th>Country:</th>
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<th>Project Name:</th>
<th>Horticultural Exports Promotion and Technology Transfer Project</th>
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<td>P076961</td>
<td>L/C/TF Number(s):</td>
<td>IBRD-46680</td>
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<td>ICR Date:</td>
<td>06/26/2008</td>
<td>ICR Type:</td>
<td>Core ICR</td>
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<td>Lending Instrument:</td>
<td>LIL</td>
<td>Borrower:</td>
<td>THE HASHEMITE KINGDOM OF JORDAN</td>
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<td>Original Total Commitment:</td>
<td>USD 5.0M</td>
<td>Disbursed Amount:</td>
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<td>Environmental Category:</td>
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<td></td>
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Implementing Agencies:
Ministry of Agriculture

Cofinanciers and Other External Partners:

B. Key Dates

<table>
<thead>
<tr>
<th>Process</th>
<th>Date</th>
<th>Process</th>
<th>Original Date</th>
<th>Revised / Actual Date(s)</th>
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<tr>
<td>Concept Review:</td>
<td>04/02/2002</td>
<td>Effectiveness:</td>
<td>01/15/2003</td>
<td>01/15/2003</td>
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<td>Appraisal:</td>
<td>04/10/2002</td>
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<td>06/26/2002</td>
<td>Mid-term Review:</td>
<td>06/01/2005</td>
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C. Ratings Summary

C.1 Performance Rating by ICR

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Moderately Satisfactory</th>
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<tbody>
<tr>
<td>Risk to Development Outcome:</td>
<td>Substantial</td>
</tr>
<tr>
<td>Bank Performance:</td>
<td>Moderately Satisfactory</td>
</tr>
<tr>
<td>Borrower Performance:</td>
<td>Unsatisfactory</td>
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</table>

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

<table>
<thead>
<tr>
<th>Bank</th>
<th>Ratings</th>
<th>Borrower</th>
<th>Ratings</th>
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</thead>
<tbody>
<tr>
<td>Quality at Entry:</td>
<td>Moderately Unsatisfactory</td>
<td>Government:</td>
<td>Unsatisfactory</td>
</tr>
<tr>
<td>Quality of Supervision:</td>
<td>Moderately Satisfactory</td>
<td>Implementing Agency/Agencies:</td>
<td>Unsatisfactory</td>
</tr>
<tr>
<td>Overall Bank Performance:</td>
<td>Moderately Satisfactory</td>
<td><strong>Overall Borrower Performance:</strong></td>
<td>Unsatisfactory</td>
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</tbody>
</table>
C.3 Quality at Entry and Implementation Performance Indicators

<table>
<thead>
<tr>
<th>Implementation Performance</th>
<th>Indicators</th>
<th>QAG Assessments (if any)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Problem Project at any time (Yes/No):</td>
<td>No</td>
<td>Quality at Entry (QEA):</td>
<td>None</td>
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<tr>
<td>Problem Project at any time (Yes/No):</td>
<td>No</td>
<td>Quality of Supervision (QSA):</td>
<td>None</td>
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<tr>
<td>DO rating before Closing/Inactive status:</td>
<td>Moderately Satisfactory</td>
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D. Sector and Theme Codes

<table>
<thead>
<tr>
<th>Sector Code (as % of total Bank financing)</th>
<th>Original</th>
<th>Actual</th>
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</thead>
<tbody>
<tr>
<td>Agricultural extension and research</td>
<td>35</td>
<td>35</td>
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<tr>
<td>Agricultural marketing and trade</td>
<td>45</td>
<td>45</td>
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<tr>
<td>Central government administration</td>
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</table>

<table>
<thead>
<tr>
<th>Theme Code (Primary/Secondary)</th>
<th>Primary</th>
<th>Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export development and competitiveness</td>
<td>Primary</td>
<td>Primary</td>
</tr>
<tr>
<td>Rural markets</td>
<td>Secondary</td>
<td>Secondary</td>
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<tr>
<td>State enterprise/bank restructuring and privatization</td>
<td>Secondary</td>
<td>Secondary</td>
</tr>
<tr>
<td>Technology diffusion</td>
<td>Secondary</td>
<td>Secondary</td>
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<tr>
<td>Trade facilitation and market access</td>
<td>Secondary</td>
<td>Secondary</td>
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</table>

E. Bank Staff

<table>
<thead>
<tr>
<th>Positions</th>
<th>At ICR</th>
<th>At Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vice President:</td>
<td>Daniela Gressani</td>
<td>Jean-Louis Sarbib</td>
</tr>
<tr>
<td>Country Director:</td>
<td>Hedi Larbi</td>
<td>Joseph P. Saba</td>
</tr>
<tr>
<td>Sector Manager:</td>
<td>Luis F. Constantino</td>
<td>Petros Aklilu</td>
</tr>
<tr>
<td>Project Team Leader:</td>
<td>Nabil M. Chaherli</td>
<td>Tijan M. Sallah</td>
</tr>
<tr>
<td>ICR Team Leader:</td>
<td>Nabil M. Chaherli</td>
<td></td>
</tr>
<tr>
<td>ICR Primary Author:</td>
<td>Richard James</td>
<td></td>
</tr>
</tbody>
</table>

F. Results Framework Analysis

**Project Development Objectives (from Project Appraisal Document)**

The development objective of the Learning and Innovation Loan (LIL) was to assist the Government of Jordan (GOJ) to improve horticultural export marketing by pilot testing:

(i) a system of outgrower farming between large and small/medium scale farmers
(henceforth called outgrowers) in order to achieve critical mass or bulk volumes demanded by the target markets and improve the income of participating farmers; and (ii) the building of the technological capacity of farmers, especially the outgrowers, to improve crop husbandry practices and their produce quality to satisfy the requirements of target markets and reduce the rejection rates of exported consignments. PDO achievement will be measured by the number of horticultural exporters and export-oriented producers, and their export volumes and values, as well as the area under horticultural production compliant with GAP standards. As this LIL tests the appropriateness of a tool (i.e. contract farming) to achieve these objectives, target values cannot be set for the objectives themselves, but rather for the service structures (such as Horticultural Export Promotion Department created and operational"; "16 Technology Transfer Specialists employed"; "quality testing laboratory upgraded and operational") which aim at improving the business environment for using this tool. In addition, the LIL will produce a number of "knowledge objects" such as case studies on contract farming arrangements, analyzing the key determinants for the arrangements actually found.

Revised Project Development Objectives (as approved by original approving authority)

At no point during the Project were the PDOs formally revised. The Project, however, underwent informal restructuring in response to the weaknesses and emerging opportunities observed during the Mid-Term-Review in June 2005. At that time, the management deemed unnecessary to formally restructure the Project because the general objectives were still considered pertinent and relevant. Therefore, in consultation with all the stakeholders, the following modifications were introduced in the Project in June 2005:

(i) mainstreaming of horticultural export promotion services within Jordan Export Development & Commercial Centers Corporation (JEDCO) and the dissolution of Horticulture Export Promotion Department (HEPD);

(ii) establishment of a Horticulture Export Fund (HEF) for small- and medium-scale farmers/producers;

(iii) creation of the position of a supply chain manager; and

(iv) establishment of a Project Management Committee (PMC).

(a) PDO Indicator(s)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline Value</th>
<th>Original Target Values (from approval documents)</th>
<th>Formally Revised Target Values</th>
<th>Actual Value Achieved at Completion or Target Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator 1</strong> : Value (JD) of key horticultural crops (beans&amp;peas, chili, cucumber, cut flowers, dates, fresh herbs, melon, okra, stone fruits, tomato) exported by proj. beneficiaries to target markets (Europe, Gulf)</td>
<td>Value quantitative or 2.5 million JD</td>
<td>5.3 million JD</td>
<td>10.4 million JD</td>
<td></td>
</tr>
</tbody>
</table>
Despite lack of a proper measure of Project's impact, beneficiary surveys indicate that approximately 275 small/medium size producers were engaged in supplying the export market either directly or through an exporter.

**Indicator 2:** Value (JD) of 10 key horticultural crops (see above) exported by proj. beneficiaries WITH CONTRACT FARMING ARRANGEMENTS to target markets (Europe, Gulf)

| Value quantitative or Qualitative | 574,120 | 1,680,000 |
| Date achieved | 12/31/2003 | 12/31/2007 |
| Comments (incl. % achievement) | |

**Indicator 3:** Number of contract farmers supplying target markets in fulfillment of marketing opportunities identified through project-financed activities

| Value quantitative or Qualitative | 8 | 81 |
| Date achieved | 12/31/2003 | 12/31/2007 |
| Comments (incl. % achievement) | |

**Indicator 4:** Area (dunum) of project beneficiaries under horticultural production for exports, compliant with GAP standard

| Value quantitative or Qualitative | 1040 | 3000 |
| Date achieved | 12/31/2003 | 12/31/2007 |
| Comments (incl. % achievement) | |

(b) Intermediate Outcome Indicator(s)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline Value</th>
<th>Original Target Values (from approval documents)</th>
<th>Formally Revised Target Values</th>
<th>Actual Value Achieved at Completion or Target Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator 1:</strong> Number of project beneficiaries with contract farming arrangements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value (quantitative or Qualitative)</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date achieved</td>
<td>12/31/2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator 2 :</td>
<td>Number of contract farming groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value (quantitative or Qualitative)</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date achieved</td>
<td>12/31/2003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments (incl. % achievement)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator 3 :</th>
<th>Number of farmers/exports who participated in trade fairs, exhibitions, and export awareness workshops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value (quantitative or Qualitative)</td>
<td>127</td>
</tr>
<tr>
<td>Date achieved</td>
<td>12/31/2003</td>
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<tr>
<td>Comments (incl. % achievement)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Indicator 4 :</th>
<th>Number of on-farm technical problems resolved as result of TTS advice</th>
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<td>Value (quantitative or Qualitative)</td>
<td>27</td>
</tr>
<tr>
<td>Date achieved</td>
<td>12/31/2003</td>
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<td>Comments (incl. % achievement)</td>
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</table>

<table>
<thead>
<tr>
<th>Indicator 5 :</th>
<th>Proportion (%) of farmers visited who shifted production to export standards</th>
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<tbody>
<tr>
<td>Value (quantitative or Qualitative)</td>
<td>7</td>
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<tr>
<td>Date achieved</td>
<td>12/31/2003</td>
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<tr>
<td>Comments (incl. % achievement)</td>
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<table>
<thead>
<tr>
<th>Indicator 6 :</th>
<th>Number of pesticide residue samples analyzed</th>
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<tr>
<td>Value (quantitative or Qualitative)</td>
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<tr>
<td>Date achieved</td>
<td>12/31/2003</td>
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<tr>
<td>Comments (incl. % achievement)</td>
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<table>
<thead>
<tr>
<th>Indicator 7 :</th>
<th>Proportion (%) of consignments rejected on arrival at target markets (Europe, Gulf)</th>
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<tbody>
<tr>
<td>Value (quantitative or Qualitative)</td>
<td>0</td>
</tr>
<tr>
<td>Date achieved</td>
<td>12/31/2003</td>
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<td>Comments</td>
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</table>
G. Ratings of Project Performance in ISRs

<table>
<thead>
<tr>
<th>No.</th>
<th>Date ISR Archived</th>
<th>DO</th>
<th>IP</th>
<th>Actual Disbursements (USD millions)</th>
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<tr>
<td>1</td>
<td>08/13/2002</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
<td>0.00</td>
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<tr>
<td>2</td>
<td>01/14/2003</td>
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<td>Satisfactory</td>
<td>0.00</td>
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<td>3</td>
<td>03/21/2003</td>
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<td>Satisfactory</td>
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<td>4</td>
<td>07/31/2003</td>
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<td>Satisfactory</td>
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<td>5</td>
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<td>7</td>
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<td>9</td>
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<td>1.57</td>
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<td>10</td>
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<td>11</td>
<td>03/16/2006</td>
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<td>12</td>
<td>12/21/2006</td>
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<td>2.39</td>
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<td>13</td>
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<td>Moderately Satisfactory</td>
<td>Moderately Satisfactory</td>
<td>3.18</td>
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<tr>
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<td>01/18/2008</td>
<td>Moderately Satisfactory</td>
<td>Moderately Satisfactory</td>
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H. Restructuring (if any)
Not Applicable
I. Disbursement Profile

![Graph showing disbursement profile over time with three lines: Original, Formally Revised, and Actual. The x-axis represents quarters from 2002 Q4 to 2008 Q4, and the y-axis represents US $ Millions. The graph shows an increasing trend for all three lines over the years.]
1. PROJECT CONTEXT, DEVELOPMENT OBJECTIVES AND DESIGN

1.1 Context at Appraisal

At the time of appraisal, agricultural export market development remained a challenge for Jordan’s economy as it depended on the politically vulnerable regional market for its exports. Following the Gulf War of 1991, export prospects eroded as the regional markets shrank. Jordan was slowly regaining its share of the Gulf markets and signed a Free Trade Agreement which was expected to double its agricultural exports to Kuwait. The country then began to pursue an export diversification strategy into the more stable, fast growing markets of Europe, designed to reduce its vulnerability.

Country and Sector Background: Jordan enjoyed competitive advantages that benefitted its production of 12 crops for which it had a commercial potential, i.e., strawberries, grapes, asparagus, melons, green beans, eggplant, tomatoes, peppers, peaches, nectarines, cherries, and raspberries. Jordan’s natural advantages include a growing season that is opposite to that of Europe, which allows the growing of summer crops when Europe is in the winter season, and meeting the demands of offseason niche markets in Europe. Other advantages include relatively cheaper labor and transportation (proximity to Europe) and an export-friendly trade and incentive environment.

The challenge of Jordan’s development planners was how to modernize its agriculture from its (current) high water consumption, but relatively low value-added contribution to Gross Domestic Product (GDP), to one that maximizes the returns to this scarce factor. Some of the institutional shortcomings preventing the private sector from responding to export prospects, in particular, Europe, in a robust manner included: organizing farmers to achieve “critical mass” or “bulk volumes”; market intelligence; technology transfer; quality control; and managerial and technical education.

Rationale for Bank Assistance. HEPTTP was identified in the Country Assistance Strategy (CAS) (Report R-2002-0229, December 27, 2002) to support the Jordanian economy to a higher growth path with equity. Specifically, the project was to:

(a) support export oriented private sector investment in the agricultural sector; and

(b) contribute to a more rational natural resources management through a more environmentally-sustainable and efficient use of land and irrigation water with higher economic returns. The project was proposed by the Bank as a LIL to provide the requisite support to catalyze large-scale farmers to contract with small and medium-scale farmers by way of incentives, timely marketing information and support services and systems. Success with this pilot operation was expected to provide a useful basis for Jordan to attract greater investments in the development of the horticulture sector with a potential for replication under a scaled-up,
follow-on operation covering a larger number of small and medium size farmers.

1.2 Original PDO and Key Performance Indicators (KPI)

The PDO was to assist the GOJ to improve horticultural export marketing by pilot testing: (i) a system of outgrower farming between large and small and medium-scale farmers in order to achieve "critical mass" or "bulk volumes" demanded by the target markets and improve the income of participating farmers; and (ii) the building of the technological capacity of farmers, especially the outgrowers, to improve crop husbandry practices and produce quality to satisfy the requirements of target markets and reduce the rejection rates of exported consignments.

KPI for achievement of the PDO:

The KPI for the project were:

(a) a significant increase in the volume and value of exports to the Gulf and European markets; and

(b) a significant increase in the number of small and medium-scale farmers producing and being linked to export markets.

1.3 Revised PDO:

The PDO and the KPI were not formally revised. However, the KPI as stated in the PAD were only broadly defined and had to be clarified and detailed into measurable outcome and output indicators early during project implementation. The achievements of the PDO were to be measured by:

(a) value (in JD) of key horticultural crops exported by project beneficiaries to the target markets (mainly Europe and the Gulf);

(b) value (JD) of the key horticultural crops exported by project beneficiaries with contract farming arrangements to target markets;

(c) number of contract farmers supplying target markets in fulfillment of marketing opportunities identified through project-financed activities; and

(d) area (dunum\textsuperscript{1}) owned by project beneficiaries under horticultural production for exports, compliant with the Euro-Retailers Produce Good Agriculture Practices (EurepGAP) Standards.

\textsuperscript{1} 1 dunum = 0.1 hectare.
1.4 Main Beneficiaries

The primary target groups of the Project were: (i) the small and medium-scale farmers with the potential but not the know-how for becoming involved in exporting horticultural products, and (ii) the large farmers and exporters interested in expanding their export business through contract farming. Through strengthening the institutional frameworks, promotion of export prospects, information dissemination, and the upgrading the certification facilities, the project benefited the horticultural sector as a whole and the following organizations/institutions in particular: (i) Jordan Export Development and Commercial Centers Corporation (JEDCO) now Jordan Enterprise (JE); (ii) the Ministry of Agriculture’s (MOA) Agricultural Marketing Department (AMD) and the Plant Protection Department (PPD); (iii) National Center for Agricultural Research and Technology Transfer (NCARTT) now National Center for Agricultural Research and Extension (NCARE); and (iv) Jordan Exporters and Producers Association (JEPA). The introduction of the Horticulture Export Fund (HEF) placed further emphasis on the main target group of small and medium-scale farmers.

1.5 Original Components

The project had four components and seven sub-components (see page 10 and Annex 2 of PAD). The total project costs including contingencies were estimated at US$6.57 million, of which the Bank financed US$5.0 million. The Government financed US$1.37 million and US$0.2 million was financed by the Local Farmers Organization.

Component 1: Horticulture Export Promotion: US$2.26 million; (Bank’s contribution US$1.73 million). This component, which was implemented by JEDCO and AMD with private sector involvement, supported the Jordanian producers and exporters through: (i) promotional activities through collection and dissemination of timely information on products and markets; (ii) capacity building activities focused on export; and (iii) advocacy activities to promote a supportive policy environment for high-value horticulture products.

Component 2: Strengthening Technology Support Services: Technology Development and Transfer US$2.36 million; (Bank’s contribution US$1.76 million). The project supported horticulture and floriculture products through: (i) adaptive technology development and transfer to assist farmers to adopt and adapt new high-value crop varieties into their farming systems; (ii) capacity building for small and medium-scale farmers to support large growers/exporters to get existing small and medium-scale farmers up to speed as outgrowers; and (iii) selection and training of TTS to provide just-in-time technology help to farmers participating in the project.

Component 3: Quality Testing and Export Certification Services: US$1.06 million (Bank’s contribution US$0.93 million). The project supported: (i) the Plant Protection Directorate of MOA to improve its capacity for testing pesticide residues and heavy metals for the issuance of internationally recognized certificates for penetrating target markets; and (ii) to improve the cold chain integrity for quality control at the
airport through the purchase of 14 thermal blankets to protect fresh produce on the pallets when on the tarmac.

**Component 4: Project Coordination Unit (PCU):** US$0.84 million; (Bank’s contribution US$0.58 million). This component supported the establishment, staffing and operations of the PCU, established within MOA, to oversee project implementation and to monitor project progress and achievements.

1.6 Revised Components

The components were not revised.

1.7 Other significant changes

Changes in scope and implementation arrangements, and financing mechanism were as follows:

(a) HEF: Although the project was successful in identifying several new market opportunities for farmers and exporters, the MTR carried out in June 2005 found that the project lacked an effective mechanism for transforming export business opportunities into business transactions. To fill this gap, the Bank’s task team and the Borrower agreed to establish a fund, the HEF, using a cost sharing basis for farm business diagnostics and a matching grant mechanism for finding solutions to export development bottlenecks. The HEF would be financed by reallocating funds from the other project categories and was meant to stimulate demand for export promotion, marketing, and technical and general business advisory services in the horticultural sector. Its main purpose was to provide small and medium-scale farmers with market information and encourage them to transform export business opportunities into viable businesses (i.e., shipments sold in target markets). Under this new mechanism, JEDCO was to manage the HEF through its newly established Business Development Unit (BDU) for the duration of the project. Other implementation arrangement changes include three business development specialists hired to staff the BDU.

(b) The Competitive Research Grant Fund (CRGF), established to support problem-solving oriented research and technology-transfer services demanded by contract farmers and exporters, was dropped. Although the grant received more than 100 requests for adaptive research, only four requests were supported. Unfortunately the farmers/exporters were not involved in choosing the four subjects receiving support or in rejecting/cancelling the remaining 96 requests. Particularly, the rejected requests for support made it difficult for farmers, exporters and TTS to get answers to technical problems they faced in the field because of an insufficient number of proposals submitted which met the requirements (were demand-driven by farmers).
2. KEY FACTORS AFFECTING IMPLEMENTATION AND OUTCOMES

2.1 Project Preparation, Design, and Quality at Entry

**Project preparation** was carried out in consultation with, and active involvement of the Ministry of Planning and International cooperation (MOPIC), Ministry of Finance (MOF), and stakeholders from the private sector (JEPA\(^2\), farmer’s representatives and associations, independent farmers and exporters), and the national research institution (NCARTT now NCARE). When early in implementation, questions about the project concept and implementation arrangements were raised by MOPIC and MOF, a consultative workshop was held with all stakeholders, including Royal Jordanian Airlines (RJA) to address the issues and incorporate recommendations made on contract farming versus market opportunities. Issues of trust and transparency arose during implementation between the public and private sector, and between exporters and contract farmers, exporters and buyers, etc. Project preparation could have benefited from more consensus building between the various players who would have been new to the world of business relationships and in what are, fundamentally, commercial interests.

The choice of a LIL was an appropriate instrument to test the potential for promoting exports from Jordan where the market to neighboring European countries showed much promise, but the capacity of Jordan’s horticulture sector for reaching and meeting such markets’ demands was not developed. Constraints to establishing an effective supply chain as well as the logistics and transportation problems were not fully addressed for the sector as a whole. The LIL was to be a learning experience designed to study the characteristics of contract farming in response to marketing opportunities and the extent to which these arrangements could improve horticultural exports. This was also the first attempt to bring together the major stakeholders in a push for promoting Jordanian horticulture by making available and testing improved support services for export promotion, improving marketing information, providing technical advisory services, and supporting the business development.

**Objective:** The project’s objectives are relevant to the priorities of developing and promoting exports in Jordan through improving horticultural marketing. The constraints to export marketing were identified during preparation and addressed through measures and instruments, knowledge and dissemination and aimed at different segments of the supply chain from point of production to point of sale.

**Project Design:** The number of project interventions and activities were beyond the realistic timeframe and scope of the LIL. The design of the project and its implementation arrangements required the participation and collaboration of a large number of players. Managing the coordination and collaboration aspects of the project

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\(^2\) JEPA was previously JEPAFV (Jordan Exporters and Producers Association for Fruits and Vegetables).
was a major challenge, particularly for the PCU, and not only required skillful management and experience, but also support from all stakeholders.

Assessment of Risk: The project was concerned primarily with institution building and as such was rated an Environmental Category C. It correctly identified the environmental and social safeguard risks associated (poor agricultural practices due to increased horticulture activity, water use, pesticide application, disadvantaged small farmers in contractual arrangements with larger exporters, etc.), and put in place appropriate measures to mitigate those risks (technical advice/assistance for proper practices, pesticide residue testing and prevention, transparent practices, arbitration measures, etc.). It also identified correctly the financial management risks, weak management of the project and lack of qualified staff, mitigating those with conditions of effectiveness, and the risks of coordination and collaboration across implementing agencies. However, on the business development risks, the project did not identify the following:

(a) failure to meet the EU buyer’s product and process standards (traceability, food safety),

(b) the cost competitiveness factor in exporting selected products (transport costs, labor, relatively higher airfreight, e.g., RJA and their charges, electricity, labor costs);

(c) access to credit for farmers and the failure to stimulate support from banking institutions for supporting/financing outgrower schemes; and

(d) the difficulties associated with upgrading exporter facilities to meet European Union (EU) market requirements.

2.2 Implementation

The project became effective on January 15, 2003, six months after being approved by the World Bank Board. However, soon after appraisal, difficulties emerged in convincing small and medium-scale farmers and potential exporters on the viability of the model (one large farmer/exporter linked with several small farmers) and its implementation arrangements. The Bank’s project team reacted quickly by holding extensive consultations with the stakeholders to re-examine contract farming models and the related issues such as logistics, priorities and next steps to move the project forward. Recommendations were proposed and agreed upon with the stakeholders to re-orient the project to focus more on private sector participation. The project team also tried to resolve implementation bottlenecks with JEDCO and the PCU. The loan closing date was extended once, for a 12 month period, to December 31, 2007 to allow services offered by the project to be brought closer to, and tailored according to the needs of small and medium-scale farmers.

CRGF: By end-2004, it became evident that NCARE, which managed the CRGF, and was involved in setting evaluation criteria, evaluating proposals, and in the selection process itself, could not compete for the research funds. Since Jordan has limited
expertise in agricultural research, most of which is concentrated at NCARE, most other institutions submitting proposals under the CRGF were neither national research entities nor specialized in agriculture and largely depended on NCARE researchers to carry out research funded under the CRGF. NCARE management and the PCU provided an early evaluation of the CRGF procedures and revised them so that NCARE professionals would be permitted to submit research proposals under the fund.

**HEF:** At the MTR, a new funding mechanism, the HEF, was designed to foster export business ventures for small and medium-scale farmers. The fund was managed by the BDU, housed within JEDCO, which would assist farmers and exporters in business proposals for exports.

Under the project, 32 TTS were recruited and trained to provide technical assistance and advice to farmers and exporters. Sixteen farmers were able to obtain EurepGAP certificates with another 34 in the process of being certified (as of December 2007); and the project contributed to the upgrading and equipping of the pesticide residue laboratory to provide Jordan’s laboratories with the ability to test for residues and issue certifications which meet international quality standards.

### 2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

**Design:** Although the design of the M&E system was appropriate, both Bank and Government project teams had difficulty measuring the achievements of the project using the broad indicators cited in the PAD. These were later elaborated into specific and measurable indicators soon after project effectiveness. Because of the nature of the LIL, the indicators were considered adequate at that time. However, by current standards, they were insufficient and incomplete.

**Implementation:** M&E, particularly important as a learning objective of the LIL, was weak. It was slow to start and did not deliver. The M&E staff in the PCU lacked the capacity and experience to carry out the monitoring activities, and the Unit was unable to carry out baseline and impact surveys of randomly selected farmers in both project and non-project areas, i.e., survey to gauge key interest groups’ response to the outputs generated by the pilot activities. The M&E Unit’s ability to collaborate with other implementing agencies (JEDCO and NCARE) to collect information and data was also ineffective. Implementing partners did not regard the M&E exercise as a learning process but instead, conducted their promotion activities without consulting or collaborating with the M&E unit. Relationships between the M&E Unit and the PCU Director were tense and lacked mutual trust. Despite repeated attempts by the Bank to strengthen the Unit with external M&E consultants, all efforts yielded little result.

**M&E Utilization:** No baseline surveys are available and no adequate management information system (beneficiary assessments, database of beneficiaries, farmer surveys, etc.) was developed by the M&E Unit to monitor export promotion and technology transfer activities. Consequently, a comprehensive beneficiary database was never prepared. During the later years of the project, the data that was compiled was considered incomplete with partial list of participants in export promotion and technology
transfer activities and with very limited information on project beneficiaries’ profiles and outputs. During the last supervision mission, Bank team members prepared a Beneficiary Survey, in addition to carrying out telephone interviews of all exporters involved in the project and the data was obtained by the closing date.

2.4 Safeguard and Fiduciary Compliance

*Safeguards:* The project did not trigger any safeguard policies. The project was an Environmental Category C and had no negative environmental impact. Although pesticides were widely used in the Jordan Valley, they were not financed under the project.

*Fiduciary Aspects:*

**Disbursements:** The Project was approved by the Board on June 26, 2002, but did not become effective until January 15, 2003. During the initial years of implementation, project progress was slow and actual disbursements were lower than originally estimated at appraisal. During the MTR which took place June 1 – 13, 2005, several issues were addressed by the Bank with the Government which had a direct bearing on the financial management arrangements of the project. The main issues being:

(a) inadequate follow-up on previously agreed recommendations;

(b) bottlenecks and inefficiencies regarding the flow of funds;

(c) no automated accounting software within the PCU with the capability of generating Financial Monitoring Reports (FMRs) required by the Bank during project implementation;

(d) insufficient coordination between the PCU and the implementing entities; and

(e) untimely audit reports. Although some of these issues were corrected, particularly the problem with the software, the PCU could have benefited from a more open and transparent relationship with the implementing agencies. At the time of MTR, and based on data available as of April 30, 2005, US$1.3 million (26%) of the Bank’s US$5 million loan had been disbursed. When the loan was extended in December 2006, disbursements had almost doubled at approximately US$2.4 million (48%) and at project closure one year later, a total of US$3.9 (78%) had been disbursed with the remaining US$1.1 to be cancelled. Loan disbursements were made within the following categories of expense:
Goods: US$1.010 million  
Works: US$0.021 million  
Services and Training: US$2.613 million  
Grants: US$0.061 million  
Designated Account: US$0.141 million  
Front End Fee: US$0.050 million

Although requested from the Government at the time of ICR preparation, disbursement data could not be obtained on the Government’s contribution of US$1.37 million or the US$0.2 million contributed by the local Farmer’s Organizations.

**Procurement Aspects:** There were many procurement related problems that negatively impacted project progress, for example, the PCU had an inefficient procurement unit with a procurement specialist who was never able to receive training despite repeated requests by the Bank that he undergo training. The Government’s procurement procedures were cumbersome which made it extremely difficult to meet procurement processing deadlines. Similarly, there was a low procurement threshold level for decision-making by the Special Tender Committee; slow processing of procurement approvals at the Special Steering Committee, uncoordinated modification of tender specifications, and time consuming procurement processes complicated procurement activities.

### 2.5 Post-completion Operation/Next Phase

**Triggers for a follow-on operation:** The following triggers were listed in the PAD as justifications for a follow-on operation:

(a) the proposed arrangement between large farmers and outgrowers proves successful;

(b) the rejection rates of Jordanian fresh produce is reduced significantly; and/or

(c) export market access has been facilitated. The project has partially met the triggers for a follow-on operation as follows: The out grower model tested under the project yielded mixed results but the contract farming approach implemented and based on unmet market demand, transparent terms between the parties, and direct support to the farmer from the exporter warrants further development. The rejection rates of Jordanian fresh produce can be improved. The horticultural export industry in Jordan is relatively new and the gaps in improvement of the supply chain need to be filled. These include overcoming the constraints of the cold chain, logistics and transport, as well as contractual arrangements on the receiving end once goods are shipped from Jordan. With regard to the third trigger, export market access has been facilitated through the introduction of new products, and methods and measures to meet the
standards for products and processes (certification, residue testing, packaging, etc.) in target markets.

Next Phase: GOJ has not yet committed to a follow-on operation with the Bank despite the success of certain project activities and results achieved with HEPTTP, and is awaiting the outcome of the ICR to discuss future possibilities in the sector. MOPIC, however, has expressed an interest in alternative sources of funds to finance some activities sponsored under the project.

3. ASSESSMENT OF OUTCOMES

Overall Rating: Moderately Satisfactory

3.1 Relevance of Objectives, Design and Implementation:

**Relevance of Objectives:** The PDO is as relevant to the country’s social and economic development needs today as it was at appraisal. The objectives of the project were consistent with the objectives of Jordan’s 2002 CAS (Report R-2002-0229) which aimed to provide direct support for export diversification and development in the agriculture sector using this LIL as its mechanism. It also remains relevant to the objectives of the current CAS (FY06-FY10) (Report R-35665) which supports strengthening the investment environment for a skill-intensive and knowledge-based economy, as well as local development through increased access to services and economic opportunities. The project addressed the key issues of: (i) filling some market niches for horticultural produce in selected markets; (ii) environmentally sound use of natural resource base, particularly water-use and reduction of pesticides and fertilizers; and (iii) the creation of farm jobs and increasing income for farmers.

**Design and Implementation:** The project’s design reflected the country’s development priorities and relevance to the PDO. It was designed as a small pilot operation and constituted a learning phase of a long-term initiative undertaken by GOJ and it has successfully tested a system of contract farming to address the demand needed by the target markets. The project has also successfully brought awareness and change in the mind-set of farmers, exporters and policy makers. In terms of keeping the implementation of the project flexible, the task team elaborated on indicators and during the MTR, modified the design to the grant sub-component to meet the changing needs of the stakeholders.

3.2 Achievement of PDO

The PDO of improving Jordan’s horticultural export marketing and building the technological capacity of farmers to improve crop husbandry practices and produce quality to satisfy the requirements of target markets in order to reduce the rejection rates of exported consignments has been achieved.

The project improved Jordan’s horticultural export marketing by building the capacity of exporters and farmers for exporting. This was carried out through
promotional activities to expose and introduce potential exporters to export business opportunities through study tours and trade fairs, some of which have resulted in export contracts for farmers to new markets. The project further supported these options with market studies on viable export products and associated markets and disseminated the findings through a communication strategy to beneficiaries. To provide the structure for improving export prospects, the project developed and promoted a system of contract farming between exporters/large-producers and small/medium scale farmers as well as stand-alone farmers’ groups contracting directly with importers. As a result of the project’s intervention, the total number of farmers exporting increased from 6 exporters at the beginning of the project to 29 (from 48 receiving support) under the project, of which 12 from the outgrower scheme phase were using contract farming (comprising 16 groups with 160 participants). Under the HEF, 16 contract farming arrangements were established, of which 12 became operational, 8 were stand-alone groups (with 67 members) exporting independently and the remaining 4 were contract farming groups (with 48 members) linked to an exporter. The contracted farmers were supplying approximately 55 percent of the exported produce, with the remainder supplied by large growers/exporters. Jordanian farmers and exporters have been less successful in penetrating the markets in Western Europe but have been able to shift their target markets to Central and Eastern Europe (Hungary, Romania, Ukraine and Russia) and improve their exports to the Gulf countries.

The project also successfully piloted institutional reforms for farmer-centered, market-driven extension systems and it is now ready for replication on a wider scale throughout the country, provided public service delivery is based on the right skills. There are indications of a move to sustainable production systems research and extension (reduction of chemicals used and soil/land testing), and to on- and off-farms value addition as a result of the post-harvest tools set up through the project.

In terms of building the technological capacity of farmers, the project provided technical advisory services and assistance through the TTS and provided funding for building the capacity of national laboratories to perform residue testing and provide international certification. A total of 16 farmers were EUREPGAP certified during the life of the project and another 34 were in the process of becoming certified when the project closed.

In terms of promoting an improved environment for exports, the project promoted collaboration between professional associations such as JEPA which increased its participation significantly during the project period. Under the project, two new subject-matter professional associations (SMPA) have been formed, one for Charentais melons and another for cut flowers with more planned in the pipeline.

3.3 Efficiency

At the time of appraisal, limitations on obtaining accurate data on fruit and vegetable prices and their marketing margins presented a challenge and therefore the Net Present Value (NPV) and Internal Rate of Return (IRR) analyses were not carried out
(Annex 7, PAD). Instead, farmgate prices were calculated on three alternative marketing opportunities:

(a) export to the EU markets;

(b) export to the Gulf markets; and (c) supply to local markets. The analysis showed that exporting to the EU and Gulf markets would reap a net return to farmers double that of local markets. At the time of the ICR, an economic analysis was carried out which demonstrated a promising outlook for exports in Jordan with an Economic Rate of Return (ERR) of 33 percent and an IRR of 22 percent. The case analyzed showed financial viability and IRRs exceeding the opportunity cost of capital.

Despite the limited use of results from the structured survey and the periodic standardized interviews carried out by the M&E Unit, the ICR economic analysis relied on data directly provided by the implementing agencies and covering production costs and gross margins, transportation costs, content of contracts signed by project beneficiaries, export destination, etc.

3.4 Justification of Overall Outcome Rating

The *Moderately Satisfactory* rating is given based on the following considerations:

(a) PDO was relevant to the needs of farmers, producers, and exporters, and the components were consistent with the project objectives, although the institution-building aspects of the project are more suited to a medium- to long-term operation rather than to the LIL’s scope and timeframe.

(b) PDOs were largely achieved, even though many of the critical activities were delayed at project start-up. The project, as a LIL, was successful in promoting the soft assets: introducing beneficiaries to new markets and models, facilitating market access, introducing quality control systems and certification, supply chain management and logistics and demonstrating areas for business development. These efforts resulted in some signed contracts for the farmers and exporters supported by the project, reached into new markets with new products, showcased successes for the project, improved the level of trust and collaboration between farmers and exporters and fostered a positive attitude towards such business partnerships. However, for these efforts to be sustainable, they will need to be supported with hardware investments (e.g., cool storage, transport). The project also made important gains in building human capital (three export business developers and 32 TTS trained and put in place); raising awareness among farmers on exporting issues (both obstacles and opportunities) and introduced environmentally sound use of natural resource base (water-use and reduction of pesticides and fertilizer).

(c) In terms of technology transfer, the project reached a significant number of beneficiaries during implementation (192 farmers with contract farming
arrangements at project closing vs. only 39 engaged in 2004); farmers who received TTS training and shifted from traditional to export standards also increased from 7 farmers in 2003 to 50 farmers at project closing. Similarly, the number of pesticide residue samples that were analyzed significantly increased from zero to 572 at project closing.

(d) The project was less successful in capturing the project’s experience with improving export marketing and development of the outgrower system due to the severe shortcomings in the implementation of the project’s M&E. The project was also set back by weaknesses in project management, including financial management and procurement management systems. Poor M&E is an important missed opportunity for any operation, but particularly so for a LIL since there was substantial information available at the local level in regions that support the findings of project success. The project also overlooked support to the private sector and associations, particularly JEPA, which could have improved the link between small farmers and large exporters on the private sector side. It was also less successful at promoting a bottom-up approach in a top-down environment, and where a lack of trust between the public and private sector tends to prevail. These constraints contributed to the collaboration hurdles across implementation agencies and stakeholders which, combined with weak project management, led to delays in project execution and outputs. Despite these shortcomings, the project was able to capture the importance of critical factors such as the development of strong professional organizations, the need to support both software and hardware in export marketing, and the importance of human development in the provision of public services.

3.5 Overarching Themes, Other Outcomes and Impacts:

(a) Poverty Impacts and Gender Aspects

Poverty Aspects: Under the project, about 250 of the field jobs created were for Jordanian workers while the other half were for migrant workers, mainly from Egypt. The salaries paid to the field workers (between US$100-US$200) suggests that it would be the poorest among the Jordanians who would occupy these jobs.

Gender Aspects: Most of the 300 off-farm jobs generated under the project were in the pack-houses (confirmed during field missions) and were filled by women because of the belief that they are better equipped to handle post-harvest processes, i.e., sorting and packaging - according to exporter’s requirements. This is a positive step since women are the largest group of unemployed in Jordan.

(b) Institutional Change/Strengthening:

The project has had mixed results on changing and strengthening institutional partners involved in the implementation of activities. JEDCO is an organization that is
heavily focused on the development of the industrial and service sectors. Though agriculture was not its prime focus, it took on the role of developing the private sector at a time when JEPA was recognized as being too weak to shoulder many of the planned activities of the project. The capacity of JEDCO was increased during the project, and the organization has decided to continue to support the horticulture industry but at a scaled-down level of effort. In interviews with private sector companies, people commented that JEDCO was providing benefit to their business success. Their future impact on the horticulture sector is viewed as relevant.

JEPA is an association rising in importance for horticulture producers and exporters. The association has grown over the project period to now having over 150 members. JEPA’s Board of Directors and its management have become stronger in their operational performance. The association has been strengthened, partially as a result of project activities even though it obtained more direct assistance from other donors. JEPA members benefited directly through study tours and trainings, but the project did not directly support its development as an association. The association will continue to develop and provide support to its members, though they will be the larger producers and exporters, since JEPA does not have a specific mandate to directly assist small and medium size producers and exporters.

The PPD in MOA was a large recipient of funds from the project and the improvements in the pesticide testing lab is tangible evidence of the project’s intervention. The physical building, equipment and staff training have created a solid foundation for improving the phytosanitary testing of horticultural products. The final step of certification of the laboratory will need to be completed if it is to fulfill its full potential and benefit the export industry.

Capacity in NCARE has also been developed as a result of the technology transfer component through hiring and training of TTS and establishment of the Post-harvest Unit. The project successfully piloted reforms for farmer-centered market driven extension systems for horticulture and is now ready for replication on a wider scale.

AMD in MOA also played a role in horticulture market research and price collection. This effort will continue and further support will be necessary for it to complete the database development to a level of satisfaction to be of relative usefulness to producers and exporters.

(e) Other Unintended Outcomes and Impacts

There were no unexpected positive or negative impacts of the project.

4. ASSESSMENT OF RISK TO DEVELOPMENT OUTCOME

Rating: Moderate

Technical factors: The probability is high that importers in the EU and the Middle East will want more assurances about the safety of fresh products. As a result of
the project, producers now have more information about the phytosanitary requirements in importing countries. The risks are low that Jordan will not be able to comply as standards become more stringent because of the improvements in laboratory facilities for testing products. Jordan is ready to comply with the necessary changes as long as it continues to move toward third party certification of testing facilities at PPD. At the same time, large producers and exporters will be able to comply with increased standards while small and medium-size producers may have more difficulty.

**Financial factors:** The availability of credit to small and medium-scale producers is a factor that will continue to constrain their participation in the export market channels. The lack of investment capital for cold storage will continue to prevent small and medium-scale producers to provide the necessary quality. There are no appropriate financial institutions that are lending to this group. There is therefore a moderate risk that these producers will continue to experience a lack of financing, preventing their participation in the export market system or relegation to the lower quality end of the market for fresh produce.

**Political factors:** Jordan’s horticulture industry faces the risk of changes in political uncertainty in the region. There will be a moderate risk that borders can be closed during certain periods (as can happen now in Saudi Arabia). This factor, if it occurs, will put small and medium-size producers at a higher risk of defaulting on contracts or bank loans.

**Environmental factors:** The horticulture industry faces a significant risk that water scarcity will become a major factor in the future in the horticulture production areas. GOJ has already limited issuance of permits for new wells for agricultural use and the increased demand for water for urban and industrial uses will put pressure on how water is allocated to agriculture. There is a moderate risk that GOJ will not be proactive in increasing the budget for applied research on water efficiency.

**Governance factors:** Agriculture in general is impacted by GOJ’s intervention in market channels e.g., Amman Central Market taxes are high and regulations can be burdensome. There is a moderate risk that GOJ policies will increase with the interference in controlling how horticulture products are exported through their sponsored auction market which would reduce potential returns to small scale operators.

5. ASSESSMENT OF BANK AND BORROWER PERFORMANCE

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry:

Rating: Moderately Unsatisfactory

Low quality at entry and weak preparation affected project implementation and supervision. In preparing this project, the Bank mobilized considerable financial and human resources including multi-disciplinary teams and highly qualified consultants
covering a wide area of technical expertise. The Bank’s performance during preparation is considered moderately unsatisfactory due to the following: (i) the project was not ready for implementation at the time of Board presentation; (ii) limited reliance on beneficiary assessment to gauge interest in the out-grower model and constraints faced by small and medium-scale farmers; (iii) project objectives were broadly defined without linking to specific measurable performance indicators; and (iv) outcome indicators were vaguely defined. An additional shortcoming during project preparation was the absence of clear M&E indicators. Given the learning goals of the LIL, M&E indicators should have been ready to launch at effectiveness but the PAD provided little detail on M&E plans. Additionally, the institutional arrangements were not clearly defined, giving for example only limited decision-making power to the PCU Director which made the PCU less effective. Given the complexity and innovative features in the project, effort should have been made in developing implementation manuals and guidelines for the project activities and in particular those related to the adaptive technology development and transfer, capacity building for small farmers and the out-grower model.

In hindsight, greater emphasis could have been placed on developing institutional capacity building activities first. Improving the project’s institutional arrangements could have been listed as a condition of effectiveness. To develop institutional capacity building activities, PHRD grant funds or retroactive financing could have been mobilized.

(b) Quality of Supervision:

Rating: Moderately Satisfactory

The project was approved in June 2002 but did not become effective until January 2003. Bank supervision teams demonstrated flexibility regarding project adjustments and reacted quickly when, during the initial stages of implementation they addressed issues regarding project design and the implementing arrangements. The supervision team carried out extensive consultations with private sector representatives and with individual farmers and exporters; drafted a set of new monitoring indicators; and organized stakeholder workshops to discuss contract farming issues, logistical concerns, future priorities, and steps to move forward, thereafter proposing solutions that were agreeable to all the parties and thus putting the project back on track.

The supervision teams also carried out regular missions with the right skill mix including post harvest technology and supply chain specialists, export and trade promotion specialists, and pesticide specialists, among others. M&E, despite enormous efforts by supervision teams, did not progress, leaving the rich and valuable LIL experience without a database that could have been used to assess financial impact, export performance, customer feedback, awareness and skill development and performance on particular key initiatives.

Project supervision improved considerably after the MTR in June 2005, when several modifications were made to improve project performance, including
establishment of the HEF, as mentioned above, and putting in place some expertise to reach out more effectively to small and medium-scale farmers and exporters.

The supervision teams’ approach to problem solving was rigorous but was not appropriately reflected in the Bank’s internal Implementation Status Reports (ISRs) during the initial years of project implementation. For example, despite the project’s lukewarm performance, the supervision team never raised any red flags and consistently gave ‘satisfactory’ ratings in the achievement of PDOs and implementation performance. It was not until the second quarter of 2006 that the ratings were correctly downgraded to ‘moderately satisfactory’ with almost 50% of the loan disbursed.

(c) Justification of Rating for Overall Bank Performance:

Rating: Moderately Satisfactory

The rating reflects the Bank’s weak performance during project preparation and moderately satisfactory performance during supervision particularly after MTR. Overall Bank’s performance is therefore rated as Moderately Satisfactory.

5.2 Borrower Performance

(a) Government Performance:

Rating: Moderately Unsatisfactory

During project preparation, the government did everything necessary to help design the project but it underestimated the difficulties in undertaking such an ambitious project to be completed within the limited timeframe attached to a LIL.

Soon after project approval, it became apparent that ownership and commitment by the government, specifically MOA, was lacking. MOA provided only limited support during implementation to resolve some very persistent issues, some that remained unresolved until the project closing date. For example, no clearance was provided to obtain the necessary additional training for the laboratory technicians for them to be able to certify products for export; similarly, additional M&E expertise was never put in place in the PCU despite repeated written requests made by various Bank supervision missions. Likewise, despite recommendations made by the Bank, neither the Procurement nor the Financial Officer were provided the opportunity to build upon their skills and receive the necessary training which the Bank considered vital in both preparing and monitoring the project’s transactions.

Additionally, GOJ’s procurement approval procedures were not conducive to private sector participation resulting in less than optimal outputs. Chronic procurement delays paralyzed completion of vital project activities. Follow up on project activities was inadequate and the oversight provided by the Project Steering Committee was minimal. For example, the installed laboratory equipment needed fine-tuning and calibration but MOA provided very little assistance in providing the necessary clearances to recruit the international consultant (for whom funds were available under the project)
despite repeated requests by the Bank supervision teams. Many critical activities such as the appointment of an M&E Specialist also made it difficult for the supervision teams to evaluate project impact during the course of the project.

(b) Implementing Agency or Agencies Performance:

Rating: Marginally Unsatisfactory

For a project requiring supply-chain coordination, the institutional arrangement for agency coordination was weak with several government departments and agencies implementing different activities with unclear linkages between them. The PCU was ineffective and lacked qualified personnel, especially in M&E. The implementing agencies conducted their own activities without obtaining clear signals from the PCU, which in turn had limited powers. The steps involved in conducting the pilot and associated responsibilities should have been better allocated and sequenced. The leadership provided by the Steering Committee was limited. MOA and MOPIC provided only little oversight throughout the life of the project which resulted in significant delays.

(c) Justification of Rating for Overall Borrower Performance:

Rating: Moderately Unsatisfactory

The Borrower’s performance suffered because of its modest commitment to the project at the ministerial level. GOJ failed to move decisively to follow up on numerous written recommendations made through Bank management letters.

6. LESSONS LEARNED

The project, through all its successes and failures, yielded important lessons on how to improve production and marketing of horticultural exports. Within the project, what worked best, and least, depended on the crop produced, the market targeted or the technology promoted, the kind of supply-chain bottlenecks faced during implementation, and how these were overcome as well as the degree of maturity reached in the project. However, good and bad practices can be identified within a specific range of dimensions covering institutional development, public service delivery, support for soft and assets and hardware, and performance evaluation as follows:

(a) The first lesson is that a clustering approach emphasizing collaboration among members of a grouping to achieve objectives that are beyond the capabilities of individual farmers or exporters is a requirement in horticulture. The project attempted indeed to link small farmers to larger farmers and exporters. Different arrangements have been experimented with. Those arrangements based on verbal or written forward contracts for predetermined quantities and quality without prior training of the contract farmers in production requirements failed to yield outcomes satisfactory to both parties. Alternatively, arrangements with an exporter renting land from a farmer and co-managing it with the owner
with the assistance from a supply-chain manager was more successful. At the end of season, the exporter shares the cost and returns with the owner and based on this information, a real written contract is entered into with the farmer becoming responsible for the management with the support of a supply-chain manager. Another successful arrangement involved contract farmers undertaking a trial production on a small area with supply-chain management, technical support and a formalization into a contract on a larger scale for the subsequent seasons. Replication of the above successful arrangements on a larger scale require setting up strong professional organizations at the production level that would jointly develop new cropping systems, integrate production and processing and enter marketing arrangements as a formalized group. The experience with some of the HEPTT promoted organisations has shown that producers must be formally organized if they are to defend their bargaining power with the local and/or international traders.

(b) Delivery of services for promotion: Research and extension remains an important role for the public sector. However, to keep up with the continual changes in the horticultural market, the public sector cannot afford to stay behind in terms of service quality. The public sector cannot be a catalyst for exporters and farmers if the skills it offers are of questionable value, and the services it provides are not timely and not adapted to the specific circumstances of horticultural marketing. The key concern for the public sector with improving marketing is the commercialization of the rural economy. This involves finding out what the customer wants and helping to setup the production/marketing system which supplies that demand and maximizes income. The lesson learned in HEPTT is that the public sector is in a position to build the technological capacity of farmers and the marketing capacity of exporters if it starts by building its own capacity either hiring the right profiles in good agricultural practices, modern technology and trade logistics or by outsourcing some of its services to the private sector.

(c) Experience in the project suggests also that improving marketing and production requires a good mix of both soft and hard assets. In its design, HEPTT did not make funds available for construction of necessary infrastructure to better link small and medium producers to exporters or directly to importers. This was consistent with previous World Bank lending putting less stress on “hard” investments and more on “software”. The quality of the fresh fruit and vegetable is high when the product is in the field, but once picked the quality can reduce rapidly. Pre-cooling units, packing houses and refrigerated transport can be important investments that stimulates the formation of producer groups. New infrastructure, like a pack house, can create multiple financial and social benefits for producers and their communities. In retrospect, investment in soft assets should have been combined with capital investments in infrastructure, trucks, etc. that would have resulted in tangible
improvements in the supply chain. The World Bank has a good example, e.g., Senegal’s Agricultural Export Promotion Project\(^3\) where infrastructure improvements resulted in tangible marketing opportunities.

(d) **Performance evaluation has proved to be a challenging task for the project.** There is a need for a more systematic approach in assessing performance if Export Promotion and Development (EPD) activities are to have a substantial impact on Jordan’s horticulture competitiveness. In this project we found that while evaluation was seen as important, the project and its implementing agencies struggled with the concept. While recognizing the difficulties in the area of M&E, this review uncovered a number of interesting lessons relevant to the specific nature of horticulture marketing. Unlike industrial projects, the success of an agricultural project is tied to being timely and responsive to both the market demands and compatibility with seasonal requirements for production. Missing a production or market window creates disruptions during a limited project horizon and necessary activities can be delayed until the next season. Critical decision points have to be identified and tracked with significant amounts of planning to execute a successful agricultural project based on evaluation of previous experiences. Similarly, the project suffered from a lack of preparedness and the ability of project staff to react to crises. Producers and exporters said they were reluctant to engage in project activities because of too many false-starts. For example, several trial shipments and promotional activities in European trade fairs conducted at different years repeated the same mistakes (e.g., disruptions in the cold chain) and prompted project stakeholders to ask “Didn’t we learn anything from the previous time when this happened”?

For the little M&E work conducted, there was too much focus on inputs (number of fairs, number of farms visited, number of workshops) when there was an opportunity to emphasize customer satisfaction and seek to ensure that increasing numbers of exporters and farmers were satisfied with JEDCO’s and NCARE’s efforts. Following an appropriate time lag measurement must be undertaken systematically after services are rendered. The few reports written after EDP activities were completed but remained sitting on the shelf. Attaining best practice will require that M&E be viewed not as the policing of EDP activities but as a tool for awareness building and a system to increase accountability in the delivery of services.

A follow-on operation could capitalize on these lessons by including support to producers/exporters associations, and in particular the commodity specific groupings, targeted credit for post-harvest infrastructure coupled with a strong branding/certification strategy and a better coordination of inputs, transport, storage, credit and post-harvest facilities. This should be based on improving the degree of coordination both across government departments and agencies and between promotion and technology transfer.

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\(^3\) Senegal Agricultural Export Promotion Project (P051610), ICR dated December 23, 2004.
activities, and a higher scale of partnership with the private sector. Fragmentation of
effort in both promotion and technology transfer from having too many targets (crops,
markets, production regions, technologies) must be dealt with swiftly so as not to
undermine the export promotion and technology transfer agencies’ or program’s chances
of success.
7. COMMENTS ON ISSUES RAISED BY BORROWER/IMPLEMENTING AGENCIES/PARTNERS

The National Centre For Agricultural Research and Extension (NCARE)

Review of the Quality of the World Bank's Implementation Completion Report (ICR)

Reviewer:

Dr. Mustafa A.H. Rawashdeh

The World Bank's Implementation Completion Report (ICR) of the Horticultural Export Promotion and Technology Transfer Project (HEPTTP) is presented in fair manner. In preparing the report, the Bank's team has used different resources, including: the project progress reports, and interview with stakeholders, government officials, operators of the project implementation agencies, and the Bank's Mid-Term Review (MTR). It addresses the following:

- A review of the project's accomplishments. The ICR provides, to a fair extent, a clear, concise description of the project’s accomplishments,
- Descriptions of what has been done to achieve the set up objectives. The report does in a fair manner document the accomplishments made by the project,
- Methods or principles used for the project. In a fair way, the report explains or discusses the methods or principles used for the project,
- The Bank's individual assessment of the methods or principles. The report addresses in a fair way the effectiveness of the chosen methods,
- Lessons learned and recommendations. The way the report introduces and discusses the lessons learned can be rated as fair.
- Report's summary and recommendation. The report provides a short summary of the content in a recommendation form.

Both the government's and Bank's ICRs are similar in reviewing the project's accomplishments, methods used for the project, and the lessons learned, while they differ in style, and the amounts of details and discussions embodied/used.
## ANNEX 1: PROJECT COSTS AND FINANCING

### (a) Project Cost by Component

<table>
<thead>
<tr>
<th>Components</th>
<th>Appraisal Estimate (US$ million)</th>
<th>Actual /Latest Estimate (US$ million)</th>
<th>Percentage of Appraisal</th>
</tr>
</thead>
</table>
| 1. Horticultural Export Promotion  
   (a) JEDCO Export Promotion  
   (b) MOA Marketing Department | 1.65 0.61 2.26 | 1.18 0.19 1.37 | 72% 31% 61% |
| 2. Strengthening Technology Support Services: Technology Development and Transfer | 2.36 | 1.37 | 58% |
| 3. Quality Testing and Export Certification Services | 1.06 | 0.65 | 61% |
| 4. Project Coordination Unit | 0.84 | 0.91 | 108% |
| **Total Project Costs** | **6.52** | **4.30** | **66%** |
| Front-end fee (IBRD only) | 0.05 | 0.05 | 100% |
| **Total Financing Required** | **6.57** | **4.35** | **66%** |

### (b) Financing

<table>
<thead>
<tr>
<th>Source of Funds</th>
<th>Type of Financing</th>
<th>Appraisal Estimate (US$ million)</th>
<th>Actual/Latest Estimate (US$ million)</th>
<th>Percentage of Appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td></td>
<td>1.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBRD</td>
<td></td>
<td>5.00</td>
<td>3.90</td>
<td>78%</td>
</tr>
<tr>
<td>Local Farmer Organization</td>
<td></td>
<td>0.20</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>6.57</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 2: OUTPUT BY COMPONENTS

Component 1: Horticultural Export Promotion

This component met the majority of its targets during the project period. Three functions were targeted to improve exports in promotion, capacity building and advocacy as follows:

(a) **Promotion:** The promotional activities (see Table 2.1) were designed to provide export advisory services to the beneficiaries to take advantage of market opportunities. Much of the technical work completed in this component dealt with promotions, market investigations, and communications as follows:

(i) **Promotions:** Producers and exporters participated in trade fairs mainly in the EU. Respondents had a generally favorable response to these fairs and twenty five contracts were signed from these visits. JEDCO arranged for 22 study tours involving 168 participants that resulted in 52 signed contracts. Respondents’ opinions were mixed on the organization and quality of these tours with comments that the teams did not meet key businessmen but rather government officials. Many of the participants were not qualified to attend and selection of the team was not transparent. The larger producers and exporters tended to dominate the team with more frequency in visits. Several of the events were poorly organized or were less than optimal with participants not meeting with the most appropriate businesses. The details on the contracts signed are not known to determine their significance and if they led to sustained business or were just “one off” trade events.

(ii) **Market Investigations:** JEDCO conducted six market studies for the Czech Republic/Slovakia, France, Greece, the Netherlands, Romania and the United Kingdom. Although these studies were useful for obtaining entry into a specific market and for making market concentration decisions, there is no indication as to how much influence the reports had on producers and exporters. Prices were collected in import markets and stored in a database for research purposes and to share with JEPA members, but it seems that information collected was not effectively disseminated. JEDCO would have benefited from having a horticultural business advisor who could insure proper use of market investigations. AMD conducted three studies on supply analysis on tomatoes, eggplants and peaches. They collected prices as averages without
reflecting the differences in grades and quality of product being sold and there is limited indication that those inputs have been effectively used by the targeted beneficiaries.

(iii) **Communications:** The project completed the following communication products: database of 400 producers; promotional materials for trade fairs produced; post harvest atlas; brochures; Boustan Al Ordan (the Garden of Jordan) Newsletter; monthly prices in key markets; trade fair programs; National Manual of Horticulture products; producer and exporter directory; webpage; and HEF brochures. The project conducted 69 workshops with over 950 participants. Workshops were conducted after producers and exporters made study tours and attended trade fairs. A website was maintained to post information and communicate with members and announce export promotions of Jordanian produce and included a database of existing large-scale farms and showcasing their products through virtual exhibitions. The project took the Comité de Liaison Europe-Afrique-Caraïbes-Pacifique (COLEACP) Harmonization Framework for ACP Codes of Practice. It simplified it, harmonized it and translated it into Arabic to form a National Manual of uniform industry standards for fresh produce destined at Jordanian exporters. The manual was completed and 16,000 copies were printed. The national manual is to be updated annually.

Table 2.1: Promotion activities conducted by JEDCO during life of project

<table>
<thead>
<tr>
<th>Promotion Type</th>
<th>Number</th>
<th>Jordanian Participants</th>
<th>Foreign Buyers</th>
<th>Contracts Signed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade fairs</td>
<td>9</td>
<td>53</td>
<td>-</td>
<td>25</td>
</tr>
<tr>
<td>Study tours</td>
<td>22</td>
<td>168</td>
<td>-</td>
<td>52</td>
</tr>
<tr>
<td>Buyer visits</td>
<td>6</td>
<td>180</td>
<td>77</td>
<td>21</td>
</tr>
<tr>
<td>Trial shipments</td>
<td>20</td>
<td>20</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Workshops after promotion events</td>
<td>69</td>
<td>950</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Market research reports</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>132</td>
<td>1,371</td>
<td>77</td>
<td>111</td>
</tr>
</tbody>
</table>

(b) **Capacity Building:** Small and medium-scale producers and their exporters received benefits in building their capacity for exporting. There were approximately 275 small and medium-size producers that were engaged in supplying the export market either directly or through an exporter. They exported 11,000 Mt in 2007 with an estimated value of US$10.5 million. It can be assumed that they gained practical knowledge in the simple workings of the export markets in quality standards,
packaging and pricing. An exporter of Hungarian peppers mentioned that if a farmer’s consignment had more than 3 percent rejects, the entire load would be rejected. Payment on quality grades would be instrumental in improving producer practices to meet quality and grade standards. Producers have to understand the importance of obtaining refrigerated transport from Jordan to Eastern European markets.

The project lacked a financial services component which is considered important in exporting for start-up companies and small scale production operations. To what extent small and medium-size producers gained from workshops is unclear because of the limited analysis provided by the M&E component.

HEF: Based on the lack of success with improving small and medium-size farmers in the out-grower scheme, the HEF was created to directly assist them with grants and business services. Three business development specialists were hired within JEDCO to develop business plans. The team worked on 16 business plans, and at the time of project closure 9 had been successfully implemented whereby groups of farmers/exporters have been formed and activities initiated. Development of business plans would be instructive for training producers in export marketing. The 9 business plans implemented covered a total of 250 ha and involved 115 farmers producing 6,575 Mt of fruits and vegetables. In the short time that the HEF operated, there is no clear evidence that significant impact occurred partly because of the late start-up in the project. The business plan approach helped focus on producing for specific market opportunities and offered a positive approach to assisting a group of producers with an export product to capture a market opportunity.

(c) Advocacy: A proactive policy environment in Jordan is necessary to induce competition, increase production and efficiencies, and strengthen the private sector. The project was to address constraints to exports such as setting minimum standards for horticulture exports, implementing identity preservation, revision of the tax code, improving collateralizing loans for horticulture production and exports, design export financing schemes, enforcing trade contracts, creating access to transparent market information, advocating for chemical protocols with importing countries (Hungary and Romania), removing packaging restrictions, addressing water usage costs and creating export friendly policies in conformance with the World Trade Organization. Even a few policy successes by the project would have strengthened the horticulture sector to be competitive with other exporting countries in the Middle East region. The role of the private sector and its main association, JEPA, was not encouraged or supported to conduct policy advocacy.
Component 2: Strengthening Technology Support Services: Technology Development and Transfer

This component addressed the second overall objective of the project for delivery of appropriate technologies to small and medium-size farmers, under three sub-components:

(a) **Adaptive Technology Development and Transfer**: Jordan has a unique advantage in horticulture production with the lowland (Jordan Valley) and the highland agro-climatic zones for adapting new varieties. Horticulture producers can penetrate market windows in import countries at different times of the year from these different zones. The production areas are within a relatively short distance of Amman’s central wholesale market and the international airport. Producers can easily transport products by air to the Gulf or Western European markets or by road to the Gulf and Eastern European markets.

These comparative production and marketing advantages did not drive the focus of the adaptive research and outreach program. Adaptive research on suitable crops for the market windows would have been important for producers in these agro-climatic zones. The CRGF for both on-station and on-farm experiments was not targeted to support small, medium or large growers in these zones. The rate of increase in salinity in the soil makes it even more imperative that new salt tolerant varieties are developed and tested. The project did not sufficiently address this problem. The competitive research studies were delayed with only four completed out of a total of 100 proposals received; and finally, the research grant program was cancelled. However, sixteen crop protocols were completed, and disseminated to farmers.

Private seed companies, like Syngenta, are active working with large producers providing improved seed varieties that match end-market requirements. The project did engage a strawberry specialist from the University of California at Davis to bring new cultivars to Jordan. However, a large Jordanian strawberry producer indicated he has developed his own sources of strawberry varieties.

The greater use of water and soil testing through the efforts of TTS made a difference to farm planning and resulted in production impacts. A major producer reported that the quality of products has increased significantly because of water and soil testing facilitated by the TTS. A farm manager in the Safi Region reported that using soil testing for better fertilizer applications saw yields increase by 50 percent in some areas of the farm.

(b) **Capacity Building for Small and Medium-Scale Farmers**: The project was designed to support large producers/exporters to link up with small and medium scale farmers to achieve supply. No data was reported in
2003 on existing linkages between large producers or exporters and small and medium-scale farmers. In 2004 there were four producer/exporters that reported contracting with 31 small and medium-scale farmers. In 2007, seventeen producer/exporters reported contracting with 201 small and medium-scale farmers.

Some exporters mentioned they will contract with additional farmers in 2008. A mid-course correction was approved by all stakeholders to employ a supply chain champion to work with jump-starting these supply chain contracts but the person was never hired. Training of small and medium-scale farmers through workshops and demonstration trials on large export farms helped to improve on-farm practices in GAP and post-harvest. No groups of small farmers received EurepGAP certification while larger farming operations did. Some exporters formed groups and provided their own technical specialists.

The project was not designed to facilitate financial lending for small and medium-scale farmers to invest in production, pre-cooling, pack-houses or transportation. The project was designed more for soft investments in support of delivery of marketing and technology transfer. Through this project, we have learned that without financial resources, capacity building training of small and medium-scale farmers would have limited impact.

(c) **TTS**: There was a change in the technical design to employ 32 TTS instead of the 16 planned. Too many people were dispersed across five regions which meant that critical results expected under this LIL could have been better by more narrowly focusing. The hiring of TTS was delayed because of a lack of candidates and then further delays were encountered in arranging the training courses, especially international studies. According to the Technical Transfer leader, the TTS were not mobilized until January, 2005. At the end of the project, TTS hired as full staff at NCARE returned to desk activities and their cell phones, computers, cameras and flash disks were removed to the central administration. This showed a lack of resources and possible interest of the implementing agency to pursue the model.

TTS conducted 117 workshops for 127 farmers and helped to facilitate water and soil tests which resulted in better yields and reduced costs per dunum. Some of the TTS helped larger producers to enroll farm...
operations in EurepGAP. When the project closed, 16 farmers are certified and 34 farmers are in the process of being certified.

Rapid removal of field heat is a critical factor for quality export produce, and this was not effectively addressed by the TTS. A mobile pre-cooler developed by NCARE was too small to be practical and a shade structure was ineffective. Both were not cost effective for small and medium scale farmers.

**Component 3: Quality Testing and Export Certification Services**

Support was provided to PPD to improve capacity for testing pesticide residues and heavy metals to certify the safety of horticulture products.

**Pesticide Residue and Heavy Metal Laboratories:** Support was provided to PPD to certify products for entry into import markets, primarily the EU. The project and the Government made important improvements in laboratories and the necessary international protocols. In 2007, the laboratories undertook tests on 97 samples for export certificates, and 453 samples of produce from the wholesale market. In the first three months of 2008, and after the project closed, 22 samples of produce for export have been tested and 224 samples were tested from the wholesale market.

Equipment was also purchased for both of the laboratories and training was conducted. However, staff commented that further training is needed in both laboratories. Again, three months after the closing date, some of the equipment purchased for the heavy metals laboratory is not functioning because of the lack of training. The turnaround time for processing heavy metal samples is still long and the number of necessary tests cannot be conducted efficiently. PPD is proposing to obtain ISO17025 certification for the heavy metals laboratory.

The pesticide formulation laboratory was separated from the pesticide residue testing laboratory with the construction of a new building. The required equipment is in place but the laboratory lacks key technical protocols, e.g., measuring and balancing the equipment, selecting and training a quality assurance person, and the accreditation by an external third party for ISO17025 certification. Consequently, international certificates needed for markets in EU countries cannot be issued to exporters. In addition, these certificates will eventually be required for the Gulf markets.

**Airport Cargo Handling Facilities:** The Cargo Department of RJA at Amman’s international airport has been improved with the privatization of the airline. The storage facilities and handling systems have also been upgraded. Although these improvements were not funded under the project, the Head of the Cargo Department is encouraging the produce exporters to adopt 100 percent palletizing which would reduce the receiving time from six hours to as short as three hours before plane departure.

Produce is still arriving at the airport too warm to be of the high quality required for export. The Cargo Department began to take temperature readings on produce entering the cargo facilities in September, 2007. These readings, which are used to protect cargo
from damaged claims, can be high for some produce indicating that the product will not be acceptable to the importing agent. Although the project did fund the purchase of the thermal blankets under this component as a means to improving the cold chain process, they proved to be expensive and not sufficiently effective as a means of heat protection for products held in the warehouse before delivery. The cargo representatives said that the thermal blankets were in fact raising the core temperature of the products.

A positive development is that members of the board of JEPA and the staff of the cargo facilities meet monthly to discuss issues related to the handling of fresh produce and. Some positive changes have resulted from these regular meetings.

**Component 4: Project Coordination Unit (PCU)**

The PCU’s role was to oversee project implementation and monitor project progress and achievements. The PCU had a Project Coordinator, an Accountant, a Procurement Specialist and two M&E Specialists.

The M&E Unit did not provide the necessary information to properly design, analyze, monitor, implement and control the technical activities conducted in Components 1, 2 and 3.

The PCU did not employ a Supply Chain ‘Champion’ to work with stakeholders in the value chain. This person would have provided the necessary guidance to stakeholders in different commodity market channels. This person would have proposed and implemented targeted interventions in specific value chains of horticultural products which would have been identified in Component 1.
ANNEX 3: ECONOMIC AND FINANCIAL ANALYSIS

The goal of the project was to increase exports by small and medium-scale farmers through linkage to larger producer/exporters with the help of the delivery of improved technology. According to JEDCO’s records, there were 192 small and medium-scale farmers that were engaged as contractees in 2007. This group represents the baseline for economic and financial analysis.

In 2004 there were 20 contract farmers. The number increased each year to 2007 but at a decreasing rate. If the project had continued, the number would have continued to increase but at a lower growth rate. For the purpose of this analysis, the number of contractees is assumed to remain at the 2007 figure until the end of the forecast period in 2012. As the number of contractees increased starting in 2004, so did the volume of horticulture products being exported. In 2004, the quantity of exports was 1,076 Mt, and it increased each year to 2007 when it was 6,979 Mt. The volume supplied by contractees increased each year of the project and at an increasing rate with the greatest increase occurring in 2007.

The value of the contractees’ exports increased from US$751,740 in 2004 to US$7,204,000. The incremental value of exports increased between 2004 to 2005 and from 2005 to 2006. From 2006 to 2007 the value increased by the similar amount as the previous year indicating a possible leveling off in the expansion rate. The rate of expansion in the last year was US$2.431 million.

Based on the information provided by JEDCO on the 192 contractees and the information from World Bank reports, an economic analysis was conducted on the project using the 192 small and medium-scale farmers. Certainly other benefits could be measured, e.g., to other groups and the impact of laboratories, but these impacts would be more subjective in nature.

Without the project, the 192 producers would have sold exclusively in the local market, probably the Amman central market. The product would likely have been of lower quality because of the lack of project assistance from both TTS and exporters themselves providing technical improvements. For the purpose of estimation, the average size holding per farmer was 3 ha and produced an estimated 6 Mt per ha in horticulture products. Since no baseline information was available on the small and medium scale farmers, an estimate is used. The 192 producers would have approximately US$1.2 million in net returns without project assistance.

With project assistance, the small and medium-scale farmers would have seen increased incremental value of their products that were sold in the export market. JEDCO data estimates that the incremental value of the exports from small and medium-scale farmers increased. The economic analysis included project cost but not the interest paid on the loan. The NPV was US$5.72 million based on an opportunity cost of funds of 10 percent. The IRR was estimated at 33 percent.
When considering the interest paid on the loan by the government in the financial analysis, the NPV of the project, assuming a similar 10 percent opportunity cost of capital, was estimated to be US$3.62 million and the IRR was estimated at 22 percent.

Based upon the above estimates, it can be concluded that the Bank loan resulted in positive benefits to the country of Jordan. The weakness in this analysis is that actual baseline information on the small and medium-scale farmers contractees were not collected to accurately estimate what the incremental benefits of the project were to small and medium-size farmers from the project.
### Annex 3 - Table 1: Production, Yield and Financial Estimates for Farmers with Benefits from HEPTT Project

<table>
<thead>
<tr>
<th>Without Project - year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
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<tbody>
<tr>
<td>Year</td>
<td>2003</td>
<td>2004</td>
<td>2005</td>
<td>2006</td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
</tr>
<tr>
<td>Farmers not engaged in the project (number)</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
</tr>
<tr>
<td>Area – ha</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total area - ha</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
<td>576</td>
</tr>
<tr>
<td>Mt/ha</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Gross margin - JD/kg</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Total JD</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
<td>1,036,800</td>
</tr>
<tr>
<td>Total US$ Baseline without project (US$)</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
<td>1,481,143</td>
</tr>
<tr>
<td>Gross margin per farmer (US$)</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
<td>7,714</td>
</tr>
<tr>
<td>Gross margin per ha (US$)</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
<td>2,571</td>
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</tr>
</tbody>
</table>
Annex 3: Table 2. Production, Yield and Financial Estimates for Farmers Receiving Benefits of the HEPTT Project

<table>
<thead>
<tr>
<th>With Project - Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2003</td>
<td>2004</td>
<td>2005</td>
<td>2006</td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
</tr>
<tr>
<td>Farmers enjoined into project activities (no.)</td>
<td>0</td>
<td>20</td>
<td>75</td>
<td>156</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
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<td>192</td>
</tr>
<tr>
<td>Amount sold by contractees (JEDCO database) (Mt)</td>
<td>0</td>
<td>1,076</td>
<td>2,138</td>
<td>3,405</td>
<td>6,979</td>
<td>6,979</td>
<td>6,979</td>
<td>6,979</td>
<td>6,979</td>
<td>6,979</td>
</tr>
<tr>
<td>Growth in contract amount (Mt change)</td>
<td>1,076</td>
<td>1,267</td>
<td>3,574</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Incremental Value of Contracted Crops (US$)</td>
<td>526,219</td>
<td>1,452,847</td>
<td>3,341,236</td>
<td>5,043,443</td>
<td>5,043,443</td>
<td>5,043,443</td>
<td>5,043,443</td>
<td>5,043,443</td>
<td>5,043,443</td>
<td>5,043,443</td>
</tr>
<tr>
<td>Incremental difference with and without project (US$)</td>
<td>0</td>
<td>-954,924</td>
<td>-28,296</td>
<td>1,860,093</td>
<td>3,562,300</td>
<td>3,562,300</td>
<td>3,562,300</td>
<td>3,562,300</td>
<td>3,562,300</td>
<td>3,562,300</td>
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</tbody>
</table>
### Annex 3: Table 3. Economic and Financial Analysis with Project Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>

#### Project Costs

- **Exporters' Investment (World Bank evaluation 11/07) US$**
  - 2003: 2,634,280
  - 2004: 400,000

- **HEPTT Investment (World Bank evaluation 11/07) US$**
  - 2004: 60,000
  - 2005: 106,176
  - 2006: 106,176
  - 2007: 106,176

- **Sub-total for economic analysis US$**
  - 2004: 60,000
  - 2005: 1,061,766
  - 2006: 3,696,046
  - 2007: 1,461,766

- **Interest paid on the HEPTT funds (World Bank study) US$**
  - 2004: 0
  - 2005: 734,134
  - 2006: 699,806
  - 2007: 531,715
  - 2008: 434,250
  - 2009: 326,579
  - 2010: 207,633
  - 2011: 76,232

- **Sub-total for financial analysis US$**
  - 2004: 60,000
  - 2005: 1,795,900
  - 2006: 4,395,852
  - 2007: 1,593,481
  - 2008: 1,896,016
  - 2009: 326,579
  - 2010: 207,633
  - 2011: 76,232
  - 2012: 0

#### Economic Analysis

- **Incremental Net benefits from exports under HEPTT US$**
  - 2003: -60,000
  - 2004: -2,016,690
  - 2005: -3,724,342
  - 2006: 798,327
  - 2007: 2,100,534
  - 2008: 3,562,300
  - 2009: 3,562,300
  - 2010: 3,562,300
  - 2011: 3,562,300

- **NPV at 10% $5,715,022**
- **IRR 33%**

#### Financial Analysis

- **Incremental Net benefits from exports under HEPTT US$**
  - 2003: -60,000
  - 2004: -2,750,824
  - 2005: -4,424,148
  - 2006: 266,612
  - 2007: 1,666,284
  - 2008: 3,235,721
  - 2009: 3,354,667
  - 2010: 3,486,068
  - 2011: 3,562,300
  - 2012: 3,562,300

- **NPV at 10% $3,623,265**
- **IRR 22%**
## ANNEX 4: BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION PROCESSES

### (a) Task Team members

<table>
<thead>
<tr>
<th>Names</th>
<th>Title</th>
<th>Unit</th>
<th>Responsibility/ Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lending</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tijan M. Sallah</td>
<td>Lead Operations Officer</td>
<td>MNSRE</td>
<td>Team Leader</td>
</tr>
<tr>
<td>Petros Aklilu</td>
<td>Sector Manager</td>
<td>MNSRE</td>
<td>Advisor</td>
</tr>
<tr>
<td>Sherif Arif</td>
<td>Regional Environment Coordinator</td>
<td>MNSRE</td>
<td>Environmental Reviewer</td>
</tr>
<tr>
<td>Tesfaye Asfaw</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Export/Trade Promotion Inst. Specialist</td>
</tr>
<tr>
<td>Amer Jabarin</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Institutional Aspects</td>
</tr>
<tr>
<td>John Edmunds</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Pesticide Specialist</td>
</tr>
<tr>
<td>Alan Legge</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Post Harvest Technology/Supply Chain</td>
</tr>
<tr>
<td>Nejdet Al-Salihi</td>
<td>Procurement Specialist</td>
<td>MNSRE</td>
<td>Procurement/Irrigation Issues</td>
</tr>
<tr>
<td>John Keith Rennie</td>
<td>Social Scientist</td>
<td>MNSRE</td>
<td>Social Issues</td>
</tr>
<tr>
<td>Meskerem Brhane</td>
<td>Social Scientist</td>
<td>MNSRE</td>
<td>Social Issues</td>
</tr>
<tr>
<td>Steven Jaffee</td>
<td>Sr. Agribusiness Specialist</td>
<td>ARD</td>
<td>Peer Reviewer</td>
</tr>
<tr>
<td>Ayman Abu-Haija</td>
<td>Financial Management Specialist (FMS)</td>
<td>MNAFM</td>
<td>Financial Management/Disbursement</td>
</tr>
<tr>
<td>Andrina Ambrose</td>
<td>Sr. Disbursement Officer</td>
<td>LOA</td>
<td>Disbursement Issues</td>
</tr>
<tr>
<td>Shawki Barghouti</td>
<td>Consultant</td>
<td>RDV</td>
<td>Agriculture Research Advisor</td>
</tr>
<tr>
<td>Cornelius van der Meer</td>
<td>Agribusiness Advisor</td>
<td>RDV</td>
<td>Peer Reviewer</td>
</tr>
<tr>
<td>Eija Pehu</td>
<td>Agriculture Advisor</td>
<td>RDV</td>
<td>Peer Reviewer</td>
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### Supervision/ICR

<table>
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<th>Unit</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Nabil Chaherli</td>
<td>Sr. Sector Economist</td>
<td>MNSSD</td>
<td>Task Team Leader</td>
</tr>
<tr>
<td>Christine Allan</td>
<td>Operations Analyst</td>
<td>MNSSD</td>
<td>Operations Support and Editor of Implementation Completion and Results Report</td>
</tr>
<tr>
<td>Lucie Tran</td>
<td>Operations Officer</td>
<td>MNSSD</td>
<td>Implementation Completion Report</td>
</tr>
<tr>
<td>Hyacinth D. Brown</td>
<td>Sr. Finance Officer</td>
<td>LOAFC</td>
<td>Disbursement Issues</td>
</tr>
<tr>
<td>Diana El Masri</td>
<td>Financial Management Specialist FMS</td>
<td>MNAFM</td>
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</tr>
<tr>
<td>Mona El-Chami</td>
<td>Financial Management Specialist FMS</td>
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<tr>
<td>Lina Fares</td>
<td>Procurement Specialist</td>
<td>MNAPR</td>
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<tr>
<td>Nadia Gouhier</td>
<td>Procurement Analyst</td>
<td>MNAPR</td>
<td>Procurement</td>
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<tr>
<td>Hamid Alavi</td>
<td>Private Sector Development Specialist</td>
<td>MNSED</td>
<td>Trade Facilitation Coordination</td>
</tr>
<tr>
<td>Matthias Grueninger</td>
<td>Rural Dev. Specialist</td>
<td>MNSRE</td>
<td>Task Team Leader</td>
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<tr>
<td>Tesfaye Asfaw</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Export/Trade Promotion Inst. Specialist</td>
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<tr>
<td>Alan Legge</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Post Harvest Technology/Supply Chain</td>
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<td>Amer Jabarin</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Institutional Aspects</td>
</tr>
<tr>
<td>John Edmunds</td>
<td>Consultant</td>
<td>MNSRE</td>
<td>Pesticide Specialist</td>
</tr>
<tr>
<td>Gregory Sullivan</td>
<td>Supply Chain Specialist</td>
<td>Consultant</td>
<td>Implementation Completion Report</td>
</tr>
<tr>
<td>Richard James</td>
<td>Operations Consultant</td>
<td>Consultant</td>
<td>Implementation Completion Report</td>
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<tr>
<td>Hassan El-Attir</td>
<td>Agricultural Research Specialist</td>
<td>FAO</td>
<td>Agriculture Development</td>
</tr>
<tr>
<td>Jens Kristensen</td>
<td>Agriculture Development Specialist</td>
<td>FAO</td>
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### Staff Time and Cost (from SAP)

<table>
<thead>
<tr>
<th>Stage of Project Cycle</th>
<th>Staff Time and Cost (Bank Budget Only)</th>
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</thead>
<tbody>
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<td></td>
<td>No. of Staff Weeks</td>
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<tr>
<td><strong>Lending</strong></td>
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<tr>
<td>FY2002</td>
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<tr>
<td><strong>TOTAL:</strong></td>
<td>26</td>
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<tr>
<td><strong>Supervision/ICR</strong></td>
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<tr>
<td>FY2003 – FY2008</td>
<td>130</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>130</td>
</tr>
</tbody>
</table>
ANNEX 5: BENEFICIARY SURVEY RESULTS

A workshop on ensuring sustainability of the HEPTTP achievements was held in Amman Jordan on March 22, 2007. The objective of the workshop was to identify the implementation challenges of the project and make recommendations to overcome them. The workshop was organized by the PCU and was attended by 33 participants from various project implementing agencies, representatives from the private sector and the stakeholders from GOJ. The following is a summary of what was discussed:

Key Groups and Points Discussed

Contracting Constraints
- Securing sufficient small scale growers to participate
- Mistrust between farmer and exporter, and vice-versa – overcome with business plan to a defined marketing opportunity
- Many potential beneficiary farmers are risk averse
- Dispute resolution - need experts – legally backed to deliver legal and fast resolution
- Specimen contracts – legal contract – Government supervision
- Create awareness of the importance of contract farming
- A fast study is needed to identify what small and medium-farmers see as risk, what are their fears? What process would overcome this?
- Need to solve bottleneck constraints for exporters, to allow them to honor contracts – and customer orders
- Transparency in all dealings

Service Delivery Constraints
- Logistics availability
- Market requirements
- Supply-chain management
- Buyer Awareness of Jordan as a potential supplier
- EurepGAP knowledge
- Finding expertise to develop business plans
- Delivery of training on a just-in-time basis
- Post-harvest Unit working and delivering services
- Provision of services to farmers (workshops), exporters (study tours), and importers (buyer missions)
- TTS hands-on delivery of technology
- Extension via TV/radio/newspaper and mail shots
- Role of private sector – partnership with public sector
- Market information system
Project Software
- Persuading research and development to re-orient towards demand-driven research provision
- Flow of information vertically and horizontally
- How implementing agencies can work smoothly together
- Process for PCU staff to follow up activities and obtain required information from staff in other agencies
- Transparency and confidence are key words in implementation

Finance
- Cover major infrastructure gaps – cost sharing
- Cooling facilities/cold stores – more needed in all regions – fixed and portable
- Packing or packhouses – better arrangements needed
- Access to affordable finance for farmers
- Incentives to attain the purposes set out by GOJ – infrastructure
- GOJ intends to establish four packing houses/cooling centers. Question: who should manage/run these centers?

Producer Organizations and Bodies
- Aggregate around existing infrastructure in an area
- Farmers need exporters to move their product to overseas markets
- A bad history exists around loans to farmers
- Need to create marketing unions to control members’ production – need incentives from GOJ and extension support
- Specialized farmers’ unions are needed – their role is in specialized crop production
- Champion farmers are needed and encouraged to lead others by being given ‘authority’
- Provide real examples from Jordan of the value added by grading and exporting

Standards
- Quality – Class I, Class II, etc.
- Safety - laboratory services – pesticide residue testing
- Heavy metal screening
- Microbial contamination checks
- Safety – field – need JordanGAP defined, using existing legislation, to assure food safety. It could be signified by a logo on certified produce
- Hygiene – BRC standards for European export packhouses, Jordanian protocol should be defined to ensure compliance with every relevant aspect of Jordanian law
- The above standards would require a mechanism for enforcement
- Standards of exports to Gulf markets need enforcement to prevent the export of sub-standard produce, which devalues the Jordanian name and the country’s reputation on those markets

**Umbrella Organization for the Actors**

- Need to gather all stakeholders into one structure – the Agricultural Champion (farmers, GOJ, exporters, unions, research, extension, etc.)
- GOJ umbrella for legislation and regulation
- Non-Govermental Organization/private sector organization
- Use the Jordan Upgrading and Modernization Program style of structure – it should be a private sector run organization
- A private national marketing company is necessary
- There is a need for a national Agricultural Marketing Organization
- Need less GOJ involvement

**Implementation issues**

- Capacity of institutions to deliver to organizations
- Writing up the lessons learned and quantifying the benefits delivered by the project.
ANNEX 6. SUMMARY OF BORROWER’S ICR AND/OR COMMENTS ON DRAFT ICR
HASHEMITE KINGDOM OF JORDAN – MINISTRY OF AGRICULTURE (MOA)
THE WORLD BANK

JORDANIAN HORTICULTURAL EXPORTS PROMOTION AND TECHNOLOGY TRANSFER PROJECT (HEPTTP),

A PROJECT IMPLEMENTATION COMPLETION REPORT (ICR)

Prepared by:

Dr. Mustafa A.H. Rawashdeh (Head of the Postharvest research Division at NCARE)

March, 2008
TABLE OF CONTENTS

• Key Data Sheet ................................................................. 3
• List of Abbreviation .......................................................... 4
1. Introduction ........................................................................... 5
2. Project Assumptions ........................................................... 6
3. Opportunities for Strengthening Project Impacts and Sustainability ...... 8
4. Project Relevance ................................................................. 8
5. Target Groups Priorities ....................................................... 9
6. Project Outputs ..................................................................... 10
7. Project Inputs ....................................................................... 13
8. Financial Management and Disbursement ................................. 13
9. Impact Assessment ............................................................... 14
10. Lessons Learned and Recommendations .................................. 15
11. Ratings of Bank and Borrower Performance ................................ 16

ANNEX I .................................................................................. 17
ANNEX II ................................................................................ 18
KEY DATA SHEET

Country: Jordan
Project Area: All Jordan
Sector: Horticulture
Project Title: Horticultural Export Promotion and Technology Transfer
Board Approval Date: June 26, 2002
Effectiveness Date: January 15, 2003
Original Closing Date: December 31, 2006
Revised Closing Date: December 31, 2007
MTR date: June 1, 2005
Loan Amount: US$ 5 million
Amount Disbursed: US$ 3.38 million

Loan Objective:
To support export oriented private sector investment in the agricultural sector and contribute to a more rational natural resources management (mainly water and soil resources) through a more environmentally-sustainable and efficient use of land and irrigation water, and with higher economic returns.

Development Objective:
To assist the government of Jordan (GOJ) to improve horticultural export marketing by pilot testing: i) a system of outgrower farming between large and small/medium scale farmers in order to achieve critical mass or bulk volumes demanded by the target markets and improve the income of participating farmers; and ii) the building of the technological capacity of farmers, especially the outgrowers, to improve crop husbandry practices and their produce quality to satisfy the requirements of target markets and reduce the rejection rates of exported consignments.

Implementing Agencies:
i) Jordan Enterprise Development Corporation (JEDCO); ii) Agricultural Marketing Department (AMD)/MAO; iii) The National Centre for Agricultural Research and Extension (NCARE); and iv) Plant Protection Directorate (PPD)/MOA;

Period Covered: January 2003 – December 2007 (which included one year project extension)

Prepared By: Dr. Mustafa A.H. Rawashdeh

Project period: Five years, date of effectiveness: January 10, 2003
# LIST OF ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AMD</td>
<td>Agricultural Marketing Department</td>
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<tr>
<td>BDU</td>
<td>Business Development Unit</td>
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<td>HEF</td>
<td>Horticultural Export Fund</td>
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<tr>
<td>HEPTTP</td>
<td>Horticultural Export Promotion and Technology Transfer Project,</td>
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<tr>
<td>JEDCO</td>
<td>Jordan Enterprise Development Corporation</td>
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<tr>
<td>MOA</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>M&amp;E unit</td>
<td>Monitoring and Evaluation Unit</td>
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<tr>
<td>NCARE</td>
<td>National Centre for Agricultural Research and Extension</td>
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<tr>
<td>PCU</td>
<td>Project Coordination Unit</td>
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<td>PPD</td>
<td>Plant Protection Directorate</td>
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<tr>
<td>TTS</td>
<td>Technology Transfer Specialists</td>
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1. INTRODUCTION

The HEPTT project's development objective was to improve the horticultural export marketing by pilot testing a system of outgrower farming and building the technological capacity of farmers. The project was logically structured into three components: i) Export promotion component, ii) Strengthening technology support services and systems component, and iii) Quality testing and certification of export produce component. According to information extracted from JEDCO, the project did lead to increased export to Europe, the Gulf states, and other countries as well. Production level under the project began with 2,560 Mt in 2004 and increased to 19,960 Mt in 2007 of which around 54% represents incremental export and approximately 55% is displacement of existing export. European countries imported 65% of total export volume and neighboring countries and the Gulf states the remaining 35%. Eastern Europe and Russia accounted for 71% of the incremental market and Western Europe accounted for 17%.

The project has achieved its overall objective of improving horticultural marketing. The factors constraining export marketing and identified during project preparation – absence of critical mass, timely marketing information and technical know-how, and knowledge of the changing standards – have been addressed through a set of measures and instruments aimed at different segments of the supply chain from "farm to fork". The availability and adoption of some appropriate technologies has been effective in initiating a change in the mind-set of farmers and exporters as well as in the Jordanian agricultural research and extension system to make it more efficient and responsive to the country's horticulture technological needs. It has facilitated a shift from the model of "supply creates its own demand" to "let's produce what the market needs". **Component 1, Export promotion**, through various assistance schemes (advisory services, in country support and market information services has to an extent successfully piloted a scheme of vertical integration (importer-exporter-farmer) and horizontal expansion (several farmers producing same product characteristics). Despite some management/logistical difficulties. **Component 2, Strengthening Technology Support Services and Systems**, successfully piloted institutional reforms for farmer-centred market – driven extension systems and it is now ready for replication on a wider scale throughout the country. There are clear signs of an appreciable move to sustainable production systems research and extension (reduction of chemical used and soil/land testing), diversification to higher value crops away from the traditional crops, and to on- and off-farm value addition. **Component 3**, the Quality Testing and certification of export produce component has made it possible to bring the pesticide residue laboratory to a quality standard to meet international accreditation. Under the project, the laboratory’s capability has finally been upgraded, through training, technical assistance and equipment support. Support has also been provided to upgrade the heavy metals testing laboratory to improve its turnaround time.

In spite of inappropriate conditions under which the project M&E unit has worked, it has done the best it can to collected the information needed for assessing the project inputs, outputs, and outcomes. In addition, the M&E unit has provided the world Bank mission with all date needed for the Bank assessment of the project. The data provision to the bank followed via e-mail, through discussions, and
in hard copy format. The project M&E unit, however, was unable to function as independently as it should. It has faced problems of different kinds due to the deficiencies in the way the PCU was managed, which prevented the M&E unit to make better performance.

Although the performance of the implementing agencies can be described as barely satisfactory, the implementation progress can be described as moderately satisfactory. The status of the project performance indicators is given under the heading: Project output. Following a request from the Government (the borrower), the loan closing date was extended by 12 months to December 31, 2007. The loan was not fully disbursed in December 2007. US$ 3.38 million have been disbursed from the loan component, including the Special Accounts (SA) balance of US$ 0.27 million. This represents claims made against expenditure incurred up to November 9, 2007 for components 1,2 and 3. Approximately .056 million was expected to be disbursed from the IBRD loan of US$ 5 million at project closure on December 31, 2007. The remaining unutilized amount of project funds is approximately US$ 1.35 million are from the loan.

The emerging trends are that contracts are being signed with big farmers/exporters who, based on contract size, engaged other farmers (small/medium farmers) in the concluded contracts. In addition, there is improved technological capabilities of some farmers and a better knowledge of Western and Eastern European and Gulf markets.

2. PROJECT ASSUMPTIONS

Assumption related to Project Development Objective: Adequate government provision of counterpart funds, and government continued commitment to supporting increased role of private sector in horticultural exports.

Assumption related to the 1st Project Component:

It was assumed that:
- a number of trade fairs and exhibitions, training seminars, study tours, and market research would be carried out yearly.
- a national exporters manual would be produced and revised periodically,
- Information system in place and operational

Assumption related to the 2nd Project Component:

It was assumed that: a number of technology transfer specialists would be trained and operational. Also, a number of small/medium scale farmers would be trained, and a number of demonstration trials conducted.

Assumption related to the 3rd Project Component:

It was assumed that the technical capacity of the laboratories would be upgraded in preparation for accreditation by the relevant EU directorate.
There was no doubt the Government’s commitment was genuine throughout the project. The project had access to all relevant information and support from political side was obvious. The specific problem area apparent during the project period was the steps followed in procuring service and goods, which -in fact- was a result of poor qualification of the procurement officer and communication between him and the special tender committee. This has resulted –in several cases- in significant procurement delay and negative impact on implementing some of the project activities. To support the project, the prime minister cabinet has approved that tenders with cost below JD 20,000.0 don’t have to go through the special tender committee. However, this approval happened on September 10, 2006, which was relatively late. The observed acceleration of the procurement process did not impact the timeliness of the procurement since only few activities were covered after September , 2006.

Proper communication by the PCU with the prime minister cabinet could have accelerated this approval and consequently expedited the procurement process.

The 1st project component consisted of two sub-components. The activities of the first sub-component were assigned to JEDCO, while the activities of the second sub-component were assigned to AMD. JEDCO has carried out most of the activities listed in the project appraisal document, including: seven foreign study tours, six (6) trade fairs, five training and three awareness workshops, one export database, three market research studies, recruited an export promotion specialist (intl. recruited) and one product specialist (nationally recruited), and produced and revised an export manual. Barely adequate planning of these activities has resulted in less positive impact of the project than expected. In addition, the component has conducted other activities that have not been listed such as trial shipments and buyer missions, which were considered necessary tools for attracting more potential importers. The AMD has conducted about 15% of its total planned activities due to some factors including: the component was inadequately staffed; and failure of the project coordinator/manager to arrange the positive interventions.

The NCARE, the implementing agency of the 2nd project component has recruited 32 TTS, trained them, and distributed them to five major regions of the country, where they had provided some training and technology transfer to a number of farmers. In this context, this project component has conducted three training and awareness workshops, a foreign study tour, and developed and implemented five competitive research projects. Some of the specific problems that have faced the project and lead to less than intended outcome include:

- Most of the TTS were not well experienced when they joined the project; and the training to which they have been exposed after they joined the project couldn't improve their skill levels sufficiently,
- Weak TTS’s management program or leadership,
- The competitive research project program faced planning and organizational problems that led to implementing about 20% of the total planned projects before the HEF as an alternative to this program has been introduced. One major reason for such an achievement was partly due to failure to engage the NCARE's scientists in implementing the planned projects. The NCARE has managed to get the prime minister cabinet's approval for engaging the NCARE's scientists in the implementation process, but paid engagement of the NCARE's scientists in the implementation process was declared as violation to the Bank policy and consequently, the Bank together with the PCU have agreed to introduce the HEF as an alternative to the competitive research grant projects.
In July, 2007, the NCARE has received a new, confident, passionate, and dedicated director general. This however was too late to make impact on the project in general and on the 2\textsuperscript{nd} project component in particular, as by this time, almost all the activities of this component have been covered and the director general new responsibilities were tremendous.

The PPD, the implementing agency of the third project component, has struggled to get its activities implemented on time, but this couldn't happen as planned. The PPD has implemented all its activities before the closing date of the project except obtaining certification from internationally recognized institution to enable it issuing quality compliance certification for farmers. The delay in the implementation process of the individual activities has caused the delay in obtaining the certification from internationally recognized institution.

3. OPPORTUNITIES FOR STRENGTHENING PROJECT IMPACTS AND SUSTAINABILITY

1. Separation of the pesticide formulation and pesticide residue laboratories

The pesticide formulation and pesticide residue laboratories of the Plant Protection Directory (PPD) of the MAO used to be in the same building with close proximity, and needed to be separated to avoid the possibility of cross-contamination. A new building has been constructed to host the pesticide residue laboratory, supported with new equipments, trained staff, and technical assistance to bring it to a quality system to meet EU accreditation and build full customer confidence in the EU market. Currently, the laboratory is preparing to meet some certification requirements of internationally recognized accredited institution. This will enable the laboratory to issue internationally acceptable quality certificate.

2. EUREPGAP Capabilities

The project has upgraded the EUREPGAP facilities at the NCARE regional centre in Dair Alla to enable it providing training and expertise for farmers and exporters to adopt good agricultural practices,

3. A postharvest Unit at NCARE

The project has assisted the establishment of a postharvest unit at the NCARE which as a fetus of a postharvest program, aiming at capacity building and transfer of feasible and appropriate postharvest technologies.

4. Absorbing the TTS in NCARE

Another general opportunity for strengthening impacts of the project work after the project ended was the integration of the Technology Transfer Specialists (TTS) in NCARE's operation.

5. Establishment of EUREPGAP certification Unit at JISM
The establishment of the EUREPGAP certification unit with the HEPTTP support at the Jordan Institute of Standards and metrology (JISM) represents a significant opportunity for strengthening the impact of the project on meeting the export market standards.

6. Packinghouses, cold storage, and Pre-cooler Facilities

Four farmers/exporters have already established packinghouse facilities operated by trained workforce, five farmers have built cold storage facilities, at least three providers of refrigerated transport service entered the market during the project life, and five forced air pre-coolers have been produced for demonstration and awareness. Currently, the pre-coolers are an integral part of the post-harvest research division at the NCARE.

7. Horticulture Program at JEDCO

JEDCO has, during the project life, formally added a horticultural program to its framework, and it's operative.

8. Legally Established Farmers/Exporter Groups

Four legally registered farmers/exporters group were established during the life of the project.

9. PROJECT RELEVANCE

Relevance to Investment in Export oriented Private Investment

The implemented activities of the project have resulted in:

- Investment in EUREPGAP facilities, fourteen farmers have became EUREPGAP certified during the project life and thirty are in the process of certification,
- Investment in packinghouse facilities, three farmers/exporters have invested in new packinghouse facilities and the required training capacity building,
- Investment in refrigerated transport means, and cold storage and pre-cooling facilities. Four private investors have taken advantages of the increasing demand for refrigerated transport, established refrigerated transport companies and started providing service for exporting farmers. It was a little bit late when the project has started giving serious attention to cold storage and pre-cooling. Consequently, about 15% of the project beneficiaries are considering establishing such facilities

Relevance to Rational Water and Soil Resources

The project's conducted activities have provided training in and made farmers/exporters aware of:

- Soiless culture, thirteen farmers have adopted this technique,
- Fertigation technique, three farmers have adopted and currently apply this technique,
- Modern Irrigation systems, ten farmers have switched to modern irrigation systems that save water,
- Water catchment management, four farmers have established water catchment facilities.
The farmers, in general, adopted the attitude that adopting these practices would of course require investments, which many of them can't afford, but at the same time, they think that in the medium to long run these investments would ensure the production of good quality products, saving water, fertilizer (lower production cost) and higher profit. According to farmers, more concentrated training in the use of these techniques is needed.

As the impact analysis above shows, the project has had a moderate significant relevance at all levels and for virtually all sub-sectors of horticulture and floriculture. The question of relevance concerns priorities and subsequent participation and sustainability. The endeavor of the project will only be relevant if the spirit and activities of the project continue. But sometimes, relevance only becomes obvious to the participants after awareness has been risen. The farmers/exporters and political awareness has been ensured together with popular participation, but the present economic situation may pose a threat.

10. TARGET GROUPS PRIORITIES

The target groups of the HEPTTP were primarily farmers and exporters and to a lesser extent the government decision makers. The project furnished training, promotional activities (i.e., trade fairs, foreign study tours, market demand research, … and the like); research grant projects, technology transfer, and assisted the building and equipping of pesticide residue facilities.

The project impact by these activities is determined by whether the choice, level, and approach of these activities and participants were appropriate. Participants have included producers, exporters and government employees, and the activities were determined after analysis of need and capacity. However, most provided activities, especially, the training-related ones had not resulted in the expected impact on the target groups due to different factors such as: i) deficiency in the implementation process of the promotional activities; ii) significant delay in implementing the laboratory-related activities, which was mainly, caused by improper/inadequate management of the procurement and accounting functions at the PCU, ii) The TTS organization and communication skills required for good implementation of these activities were weak, which resulted in weaker positive impact on farmers/exporters than expected.

With these factors in mind, it can be concluded that the overall impact of the project's work on target beneficiaries was moderate: i) some conducted activities (i.e., trade fairs and foreign study tours) have led to export contracts conclusion, especially, between large and already experienced local exporters from which in some cases small and medium scale farmers have benefited; ii) the project has conducted training activities to farmers and exporters. However, the impact of the provided training and technology transfer on target groups can be described as less than expected.

11. PROJECT OUTPUTS

With the objectives given, the initial planning process included selection of outputs in accordance with the design of the pilot/project specified in the project appraisal document. Since the project was a
learning and Innovation Loan (LIL), there was no solid confidence that these choices were correct. Status of project performance indicators is given in Tables 1 & 2 in Annex 1.

The project has contributed to the export of selected crops which originated, mainly, from well situated farmers/exporters. However, in the area of farmers/exporters capacity building, the contribution was relatively weak.

**The Horticultural Export Promotion Project Component**

The horticultural export promotion project component has conducted several activities (trade fairs, foreign study tours, trial shipments, and buyer missions) which lead to the following output:

- A conclusion of 117 export contracts that resulted in 2,566.00 Mt of horticultural products exported during 2004, increasing to an estimated 19,957 Mt by the end of 2007, yielding an annual growth of 94%. The corresponding value of the export was US$ 3.9 millions in 2004 and grew to US$ 24.5 millions in 2007. Most of the exported volume was produced by farmers/exporters, especially, large and well developed ones who participated in the promotional activities. These farmers/exporters gave priorities to their products in the first place. If the contracted volume was bigger than what they couldn't furnish, they bought the make up amount from contracted or not contracted small/medium scale farmers. The value of export in 2007 (US$ 24.5 millions), is based on information provided by JEDCO. According to JEDCO, the questioned exporters released the number of export contracts concluded and value of them only after it was agreed to keep the names secret. The exporters, however, wouldn't specify whether the volume and value of the resulted exports was from new importers established through participation in the project activities only, old clients, or from new and old clients; neither they would specify the percentage of the participation of the small and medium scale farmers.

- A total of 27 contract groups were established during the life cycle of the project, eleven groups of which have been established during the first four years of the project life, while the rest (16 groups) were established with assistance of the HEF. Of the total contract groups only four were legally registered. The total number of farmers participating in the 27 groups reached 256 averaging 13 per group.

- Although with delay, a national export manual has been prepared, distributed, and updated; and is being used by farmers/exporters as a tool providing knowledge about export procedures in various export markets. In addition, promotional materials for foreign missions in Jordan and other countries have been prepared and the AMD's Marketing Information System is now partly operational. As a result of these and other promotional activities, the 27 farmers/exporters groups are in a position to produce today in accordance with the export markets standards.

**Strengthening Technology Support Systems and Services Project Component**

This project component has conducted activities which lead to the following output:

- About 200 national farmers have been visited by the TTS in the five major different regions of the country. Between 2004 and 2006, fourteen (14) farmers have become EUREPGAP certified, thirty
(30) others are in the process of becoming certified. This was a result of cooperation between the TTS and NCARE's scientists,

- Although with significant delay, fourteen crop protocols have been prepared and distributed to farmers/exporters and other relevant bodies, with the view to improve the production and marketing efficiency of these bodies. Since these protocols reached later as expected to the hand of the farmers/exporters, it's early to tell of the extent of the impact of these protocols on the project beneficiaries,

- About 20% to 30% increase in yield and decrease in fertilizer use of some farms have been achieved as a result of advice based on water and soil tests provided by the TTS. Better results could have been achieved had the program of activities been better managed and the profile of the TTS been more adapted to the needs of the farmers. Poor management, lack of effective leadership, and limited skills in some subject matters were among the major reasons for failure of the TTS program to achieve more substantial results,

- Five pre-coolers have been produced and used for demonstration and enhancing awareness of farmers about the importance of pre-cooling in preserving good quality of the produce, the pre-coolers have been transferred to the ownership of the NCARE after the project went to an end and are considered a part of the project sustainability,

- A postharvest unit has been set up, it's equipped with a group of postharvest equipments, which together with the five pre-coolers are being used for demonstration in training and awareness purposes.

Quality Testing and Export Certification of Export Produce Project Component

Outputs planned for this project component have been:

- Under the project, the pesticide formulation and pesticide residue laboratories of the Plant Protection Directory (PPD) of the MAO have been separated which eliminated the possibility for cross-contamination.

- Training capacity, and facilities and equipment capabilities of the laboratories have been upgraded

- Meeting some certification requirements of internationally recognized accredited institution that would enable them to issue internationally accepted quality certificates to farmers/exporters.

Although with delay, all outputs have been completed with the exception of the activity to meet some certification requirements of internationally recognized accredited institution to enable the labs to issue internationally acceptable quality certificates to farmers/exporters. Due to long delay in the separation process, it was not possible for the laboratories - during the project life cycle - to meet this requirement. The laboratories' staff, however, are currently working closely with the MOA toward achieving this objective.

The Horticultural Export Fund (HEF) Component

Sixteen (16) export plans have been prepared – mainly by some selected members of the TTS, the farmers themselves, and poor participation of the BDU staff. The plans were approved by the Project Steering Committee (PSC). Nine (9) of the plans were supposed to be implemented with the assistance
of the BDU staff during the life of the project. However, none of these plans has been completed during the planned time, it was mainly due to poor qualification and experience of the BDU staff, the procurement officer at the PCU, and the limited technical expertise of the TTS to deliver the required services sought by the HEF assisted groups. If implemented, the nine business plans would have covered a total of 250 hectares and involved 115 farmers for an estimated export potential of 6,575.0 tons of fruits, vegetables, and cut-flowers.

The Project Coordination Unit (PCU) Project Component

The PCU has mainly organized meetings such as steering committee meetings, technical implementation meetings, project management committee meetings, tender evaluation meetings, awareness workshops, etc. In most of these meetings the PCU objectives were to receive approval to some requests. Of importance was those activities for which it received approval with expectation to make some positive achievements toward the project set up objectives. The outputs of meetings that resulted in negative impact on the project include:

- Approval to set up the HEF,
- Approval to cancel the Competitive Research Grant Fund projects,
- Approval of modified conditions for participating in the project activities.

The achievements from implementing these three approved activities, however, turned out to be much smaller than anticipated. In case of the HEF, the poor achievements were, mainly, due to poor qualification of the BDU staff recruited to implement the HEF's related activities, and the fact that the project manager (or project coordinator) thought of the HEF as a new project that justifies extension for additional several years (as a matter of fact, the HEF was established to finance --on a cost sharing basis-- export plans from farmer groups that meet some pre-identified criteria). Therefore, the BDU staff's strategy was to assist the development of as many export plans as can be - consequently, 16 export plans were developed - but they (the staff) were intentionally slow in implementing the plans' activities to justify the extension of the project. According to some farmer groups, they were told about cost sharing only when it came to implementing the plans' activities, then (these farmers) consequently rejected the idea and retreated.

The HEF was introduced as a more effective alternative to the Competitive Research Grant (CRGF) projects to help the farmers/exporters build their pre and postharvest capacity. Both the limited success of the HEF and canceling the CRGF projects have caused a major blow for the project since significant achievements toward the set up objectives were expected to result from HEF or the CRGF projects.

Procurement, Financial Management, and Clerical Functions

Better coordination and performance could have been achieved if the procurement, accounting, and clerical functions were adequately conducted/managed.

12. PROJECT INPUTS
For each of the four project components, the input consisted of Equipment and Technical assistance costs. Details of project inputs are given in annex II. The inputs of the HEF–related activities are absent from the list, as the BDU staff were reluctant to cooperate and only some small number of activities of some developed export plans have been implemented. It was not possible to determine the output and impact of the implemented activities, as the BDU staff refused to cooperate.

13. FINANCIAL MANAGEMENT AND DISBURSEMENT
The original Project Document listed an outline budget, which was detailed during the inception phase. The budgets were linked to the accounting system and to actual field activities. Although with a significant delay, an automated accounting system of the project administration and management has been set up and enabled project staff constantly to update budgets, thus reporting to the Project Steering Committee budget adjustments reflecting the real situation. The project has therefore received adjustment approvals on a regular basis.

As of November 9, 2007, the actual project expenditures amounted to US$ 4.30 million, of which US$ 3.38 million is financed from the Bank Loan. Commitments (i.e., value of signed contracts less amount paid) amounted to US$ 0.90 million, of which US$ 0.56 million will be paid from the loan. The remaining unutilized amount of project funds is approximately US$ 1.35 million are from the loan.

Payments for Committed and Delivered Activities: All project activities have been finalized and services and goods sent to the Bank before the project closing date, Dec., 31, 2007.

14. IMPACT ASSESSMENT: EFFECTIVENESS IN ACHIEVING OBJECTIVES

Two major declared objectives were defined for the Horticultural Export Promotion and Technology Transfer Project (HEPTTP):

Objective 1: to support export oriented private sector investment in the agricultural sector; and

Objective 2: to contribute to a more rational natural resources management (mainly water and soil resources) through a more environmentally sustainable and efficient use of land and irrigation water, and with higher economic returns.

The Project placed different priorities on these objectives, complementing each other to make contribution to achieving these objectives:

The 1st project components, Horticultural export promotion. The activities of this component have actually been selected, with the expectation to lead to significant private investment in postharvest facilities and equipments (i.e., pre-cooling, cold storage, packinghouse operations, refrigerated transport, training capacity building, … etc.) and to the introduction of new legislation related to meeting export market standards. This, however, has taken place in a slow manner, but resulted in a
positive shift in the attitudes of many farmers/exporters toward investment in export – related capabilities and some outputs have been delivered (see Project outputs).

The project has influenced the government to adopt pro-horticulture export policy changes. New guidelines and conditions related to the quality and treatment of export of fresh produce have been introduced. It (the government) is expected to apply these guidelines during the 2008.

**The second project component, strengthening technology support services and systems.** The activities of this component concentrated on good agricultural practices and training capacity building, with the view to achieve better management of water and soil resources and delivered some encouraging outputs in this regard (see project output, above).

**The third project component, Quality testing and certification of export produce.** The activities of this component concentrated on establishing the physical infrastructure and the training capacity needed to facilitate certification for export markets, especially, in Europe. So far, the planned needed physical infrastructure and training capacity have been achieved, but the accreditation by internationally recognized institutions to enable the established capabilities to issue compliance certificate to farmers/exporters with the export market Maximum residue levels (MRLs) didn't take place during the life cycle of the project. Currently, the PPD of the Ministry of agriculture is working on this issue. Having such accredited institution in place, will influence farmers/exporters to invest in export oriented activities to ensure the production of products that meet the export market requirements and improve water and soil management as well.

**The Project Coordination Unit (PCU):** The activities of the PCU were supposed to focus on ensuring that implementing the activities of the other three project component will lead to output that would contribute to achieving the project development objectives. However, the staff organizational structure of the PCU was relatively not favorable to a good achievement of the set up project objective, due mainly, to the inefficient way this entity was managed.

### 15. LESSONS LEARNED AND RECOMMENDATIONS

- The project would have assisted much more farmers, especially, small/medium scale ones to produce according the export market requirements if it (the project implementing agencies and the PCU) has been better coordinated and managed, and staffed with better qualified persons. The experience showed how important for the success of the project to have a pro-active coordination and management function. The HEPTTP's coordination and management function turned out to be not as transparent and effective as it should be.

- The project M&E unit couldn't perform its function easily as a part of the PCU organizational structure, an independent M&E unit would have made it possible for the project to make more and sinful achievements.
Farmers/exporters can't produce the needed quality and market their products profitably without having the right means (skilled workforce, appropriate facilities, and equipments) to do so. The project must have given more attention to such means. Therefore, if the project would have to be repeated, it would be strongly recommended to focus on:

- Establishing publicly owned farms in different regions that have the right equipments and facilities for demonstration and making these farms available to national research institutions and universities to enable conducting based on demand research, development, and extension. The postharvest research division at NCARE is currently working on addressing this goal.
- The experience showed that the project's sponsored activities had little success in building trainer capacity and little number of farmers/exporters and/or their workforce have been exposed to well organized training in modern pre and postharvest technologies. The built trainer capacity was mainly in postharvest and trained number of trainer. Trainer capacity is still needed in some vital areas such as fertigation, soiless culture, grading, sorting, packaging and marketing. It's important to organize the needed training for free or symbolic fees to encourage as many as possible farmers to engage in the proposed training.
- Building mobile trainer capacity in specified areas of horticulture and floriculture who would be ready to provide consulting services to farmers/exporters wherever they are. The TTS could have served this purpose have they had the right management, experience, and leadership.
- Investing in trainer capacity in the area of product inspection,
- Building trainer capacity in packinghouse operation,
- Supporting research, development and extension in identifying and producing high value products,
- Linking farmers with potential importers to encourage farmers to invest in facilities and equipments (good agricultural practices) that guarantee the production of high quality products at reasonable production costs. Importers would also tell farmers in advance which products (volume, and quantities, and time) they need. This would help farmers to become demand but not supply driven,

- The experience showed how inadequate coordination and management of the project coordinator/manager can lead to a poor performance of the project,
- Effective planning of activities is important. Without effective planning of activities, implementing them would result in poor output, The experience showed that although activities have been implemented, the output and impact were not as expected.
- The experience showed that the ability of farmers/exporters, especially, the small and medium scale ones to produce the quality and quantity which the export and local markets require is limited by the shortage of fund, or inability to access credit. Therefore, the government could assist solving this problem by, for example, supporting the creation of a supervised credit program for small fruit and vegetable farmers, designed to improve farm productivity, lower assembly and distribution costs, and encourage more stable seasonal price and production patterns.
- Halfway organization of activities, undermining the importance of pre-cooling, proper refrigerated transport, and other postharvest handling activities, have resulted, more than once, in shipments reaching destination in bad conditions, thus resulting in time, money and product losses.
- Use of incentives. The project has not made enough use of incentives, for example, to influence the government to apply some sort of tax incentives for farmers who would invest in facilities and equipments that would enable them to produce according to export market requirements. Other incentives would be to facilitate access to credit for farmers who establish groups,
• The use of tools, equipments, and trials for demonstration purposes in the implementation processes of some project-related activities was almost absent. It's important to pay more attention to this aspect and support the purchase of such tools and equipments to enable successful implementation and impact.

• The ministry of agric. needs to speed up the efforts of accreditation for the laboratories, otherwise opportunity of getting considerable market segment will fade.

### 11. RATINGS OF BANK AND BORROWER PERFORMANCE

(HS=Highly Satisfactory, S=Satisfactory, BS = Barely Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

<table>
<thead>
<tr>
<th>Bank Performance:</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Lending</td>
<td>( ) HS (x) S ( ) BS ( ) US ( ) HU</td>
</tr>
<tr>
<td>Supervision</td>
<td>( ) HS (x) S ( ) BS ( ) US ( ) HU</td>
</tr>
<tr>
<td>Overall</td>
<td>( ) HS (x) S ( ) BS ( ) US ( ) HU</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Borrower Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
</tr>
<tr>
<td>Government Performance</td>
</tr>
<tr>
<td>Implementing Agencies' Performance</td>
</tr>
<tr>
<td>PCU performance</td>
</tr>
</tbody>
</table>
ANNEX I

Table 1: Project Performance indicators

<table>
<thead>
<tr>
<th>Year</th>
<th>Exported Volume (in MT)</th>
<th>Export Value (in US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contracted Groups</td>
<td>None Contracte farmers/exporters</td>
</tr>
<tr>
<td></td>
<td>Mt % Mt %</td>
<td>US$ % US$ %</td>
</tr>
<tr>
<td>2003</td>
<td>n.a</td>
<td>n.a</td>
</tr>
<tr>
<td>2004</td>
<td>1216</td>
<td>47</td>
</tr>
<tr>
<td>2005</td>
<td>2193</td>
<td>36</td>
</tr>
<tr>
<td>2006</td>
<td>5804</td>
<td>46</td>
</tr>
<tr>
<td>2007</td>
<td>11008</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 2: Project Performance Indicators

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Contracted Groups engaged in Export</th>
<th>No. of non. Contracted farmers engaged in export</th>
<th>Exporters/Producers engaged inexport</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>6</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>2004</td>
<td>8</td>
<td>57</td>
<td>8</td>
</tr>
<tr>
<td>2005</td>
<td>6</td>
<td>71</td>
<td>13</td>
</tr>
<tr>
<td>2006</td>
<td>17</td>
<td>168</td>
<td>24</td>
</tr>
<tr>
<td>2007</td>
<td>37</td>
<td>371</td>
<td>48</td>
</tr>
</tbody>
</table>
ANNEX II

Project Inputs

<table>
<thead>
<tr>
<th>Material and Equipments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Project Component # 1: Horticultural export promotion.</td>
</tr>
<tr>
<td>Under the project, this component has been implemented by the Jordan Enterprise Corporation (JEDCO) and the Agricultural Marketing Department (AMD) of the Ministry Of Agriculture (MOA). The inputs of this component included:</td>
</tr>
<tr>
<td>Material and Equipments</td>
</tr>
<tr>
<td>The 1st project component has invested in:</td>
</tr>
<tr>
<td>- Two four wheel drive vehicles (for JEDCO),</td>
</tr>
<tr>
<td>- Six Personal Computers (PC), …. (JEDCO),</td>
</tr>
<tr>
<td>- Two printers … (JEDCO),</td>
</tr>
<tr>
<td>- One Photo copier, fax, and scanner , … (JEDCO),</td>
</tr>
<tr>
<td>- Three office furniture., …. (JEDCO),</td>
</tr>
<tr>
<td>- One four wheel drive vehicle, … (for AMD),</td>
</tr>
<tr>
<td>- A Marketing Information System (MIS), …. (AMD)</td>
</tr>
<tr>
<td>- One Photo copier, fax, and scanner , … (AMD)</td>
</tr>
<tr>
<td>- One Beamer, … (AMD),</td>
</tr>
<tr>
<td>- One Laser Color printer (AMD)</td>
</tr>
<tr>
<td>- One Laser Black and white printer (AMD),</td>
</tr>
<tr>
<td>- CD writer , … (AMD),</td>
</tr>
<tr>
<td>- Soft-ware for scan analysis, … (AMD)</td>
</tr>
<tr>
<td>- Soft-ware for the library …. (AMD)</td>
</tr>
</tbody>
</table>
Technical Assistance:

JEDCO:

The costs of the following Technical Assistance activities were covered:

**foreign training:**
- Training for seven HBD staff
- Seven Study tours for farmers/exporters, …. (seven planned)
- Development of export database

**National Training:**
- Computer training for HBD staff.
- Five training seminars and three awareness workshops, … (nine planned)

**Trade Fairs:**
- Six (6) trade fairs, …. (six planned)
- Five Buyer missions…….. (added)

**Short-Term consultants**
- An export promotion specialist (intl. recruited),
- One product specialist (nationally recruited)

**Long-term consultant (nationally recruited):**
- One department director, division heads, four technical staff, one bi-lingual secretary, and one driver/messenger, ..........( the project were financed by the project till the end of 2004,

**Marketing research:**
- Three Market demand research studies

**Workshops and Seminars:** eight training and feedback workshops and seminars

**Subscriptions and Publicity:**
- Subscribed International Trade Center (ITC) Marketing, News
- Produced Eleven Bustan El-Ordun news letter editions

**Buyer missions:** eight buyer missions,

**Trial Shipments:** Twenty trial shipments (alone and with the HEF)

**AMD**

**Horticultural Supply Research**
- One supply capability study
- Twenty (20) Post-harvest atlas, …
- Fifty (50) Standardization Manuals,

**Second Project Component: Strengthening Technology Support Services and Systems**

The project has invested in the following activities:

**Material and Equipments**
- Two four wheel drive vehicle
- One double cabin vehicle
- Two Personal computers One printer,
- One photo copier
- Thirty two laptops
- Two office furniture

**Technical Assistance**

One Local Induction training (for the TTS):
Two workshops for the Stakeholders
- Foreign Training:
  - One foreign study tour
**Technological Meetings:**
Twelve technical panel meetings

**Short-Term Consultants:**
- Short-term national consultants

**Long-Term Consultants:**
- One Senior technology transfer specialists
- Thirty two technology transfer specialists
- One secretary
- One driver

**Studies:**

- Fourteen Crop protocols

**Third Project Component: Quality Testing and Certification of Export Produce**

The project has invested in the following activities:

**Equipment and Materials:**

**Office Equipment:**
- One Personal Computer with window 2000,
- One Laser jet printer

**Laboratory Equipment:**
- One Automated injector for HP6890,
- One HP-Bench top LC-MS,
- One Varian Saturn GC-MS,
- One Fume cupboards (Operator safety),
- One Integrated Management System,
- One Heavy Metal Analyzer.
- One Lab. sample homogenizers,
- Three Analytical sample macerator,
- One Automated evaporator,
- One Electrical Transformer to enable connecting the equipments to power supply,
- One Chopper,
- One Cereal Mill.

**Technical Assistance:**

**Foreign training:**

- QA. Auditor training for two laboratory staff
- New equipment training for two laboratory staff

**Short-Term consultant (internationally recruited) for:**

- ISO 1725 and methods,
- Assimilation of new equipments, GLP-system
- Terminal Assessment
- Installation of MRL Database

**Civil Work**

- New pesticide laboratory building,
- Rehabilitation of the formulation lab building

**The fourth Project Component: The project Coordination Unit (PCU)**

The project has invested in the following activities:

**Equipments and Materials:**

- Two four wheel drive vehicles
- One double cabin vehicle
- Seven personal computer
- One laptop
- Seven Laser jet printers
- One photo copier, fax, abd scanner
- Telephone/email

**Technical Assistance**

**Long-Term consultants (nationally recruited):**

- One Project coordinator,
- One Accountant,
- One Procurement officer,
- Head of monitoring and evaluation unit
- One Assistant head of M&E unit
- Bi-lingual secretary,
- Two Drivers and one /messenger.

**Short-Term consultant:**

- Four Short-Term consultants
**Technical Reports**
Auditing of the project accounts

**Meetings:**
- Steering committee meetings
- Technical Implementation committee meetings,
- Project Management Unit meeting,
Annex 6: Comments of Co-Financiers and Other Partners/Stakeholders

Not Applicable
Annex 7: List of Supporting Documents

1. Project Concept Note, April 4, 2002