Quality Assurance on a Major Energy Systems Analysis Project in South-East Asia

Brendan Millane, Key Economics Pty Ltd

Topics

• Introduction
• Elements of Quality Assurance Deployed
• Project Metrics
• Some Conclusions
  – Caveat 1: non-commercial aspects
  – Caveat 2: respect confidentiality
Introduction

• Role of Technical Advisor
• Overview of Project Design
• Outline of Project History

Technical Advisor

• Adviser to donor (not teams)
• Technical assistance by Contractor
• Quality assurance - dialogue with teams
• Attend major technical and management meetings
• General independent resource
• Perspective = counterpart benefit
Project Design

- Formation of teams, formal stakeholder groups, installation of H’ware, S’Ware
- Training & assistance (sequential rounds)
- Baseline databases and updates
- Exchanges within region and to Australia
- Formal Policy Study Reports (3)

Other Project Design Features

- Developing country context
- Regional project basis central to the donor
- Asean 5 plus Regional Host (later extended by 3 Aseans)
- Strong overlay of donor project documentation and planning
- Strengthened Quality Assurance features after project suspension
Project History

- Commenced March 1999 as 4 yr project
- Key staff resign late 1999- suspension 2000
- Stock-take Mission late 2000/early 2001
- Modification to design- retender process
- Re-start February 2002
- 3 newer Aseans added (2004 -)
- Project near completion (Nov 2005)

Elements of Quality Assurance

- Formal Project Planning Rounds
  - Research, Training and TA, Exchange Plans
- QA Plan and Performance Monitoring Framework
- Internal Peer Review of formal studies
- Technical Assessment on major outputs
Technical Assessment reports to Donor

- Assessment of Annual Planning Documents
- Database Inspections and Team Visits
- Assessment of Policy Study Reports—National and Regional

Database inspections and Team visits

- Visit rounds to 5 national and regional team
- Lodgement of databases and documentation
- Discussion - team, senior Govt rep, (donor post)
- Report to donor agency
- Desk Assessment for extension teams
Regional Database Development

- Latest national models incorporated (sometimes with adjustment)
- Additional data
  - non-participant countries and trade regions

Criteria for Policy Reports

- Progress in Proficiency in processes and techniques
- Understanding of model capacity and limitations
- Design of policy scenarios and cases
- Interpretation and discussion of model results
- Reproducibility of results and comparisons with other studies
Improvement Observed in Policy Reports

- Conclusions supported by model results
- Results properly reported in the tables or text
- Interpretation of conclusions consistent with results

Selected Metrics

- End Use Demands (minor structure, forecasts upgraded)
- Energy Carriers (substantial development)
- Technologies (major growth)
- User Constraints (now mainly reflect multiple scenarios)
### Metrics: End Use Demands

<table>
<thead>
<tr>
<th>Country</th>
<th>Baseline</th>
<th>Mar04</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>95</td>
<td>60</td>
<td>96</td>
</tr>
<tr>
<td>Country B</td>
<td>62</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>Country C</td>
<td>73</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Country D</td>
<td>41</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>Country E</td>
<td>74</td>
<td>74</td>
<td>74</td>
</tr>
</tbody>
</table>

### Metrics: Energy Carriers

<table>
<thead>
<tr>
<th>Country</th>
<th>Baseline</th>
<th>Mar 04</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>176</td>
<td>220</td>
<td>377</td>
</tr>
<tr>
<td>Country B</td>
<td>35</td>
<td>76</td>
<td>94</td>
</tr>
<tr>
<td>Country C</td>
<td>53</td>
<td>58</td>
<td>96</td>
</tr>
<tr>
<td>Country D</td>
<td>45</td>
<td>54</td>
<td>74</td>
</tr>
<tr>
<td>Country E</td>
<td>29</td>
<td>42</td>
<td>55</td>
</tr>
</tbody>
</table>
## Metrics: Technologies

<table>
<thead>
<tr>
<th>Country</th>
<th>Baseline</th>
<th>Mar 04</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>667</td>
<td>573</td>
<td>950</td>
</tr>
<tr>
<td>Country B</td>
<td>147</td>
<td>376</td>
<td>507</td>
</tr>
<tr>
<td>Country C</td>
<td>267</td>
<td>301</td>
<td>552</td>
</tr>
<tr>
<td>Country D</td>
<td>144</td>
<td>212</td>
<td>315</td>
</tr>
<tr>
<td>Country E</td>
<td>185</td>
<td>261</td>
<td>326</td>
</tr>
</tbody>
</table>

## Metrics: User Constraints

<table>
<thead>
<tr>
<th>Country</th>
<th>Baseline</th>
<th>Mar 04</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>95</td>
<td>19</td>
<td>60</td>
</tr>
<tr>
<td>Country B</td>
<td>1</td>
<td>28</td>
<td>59</td>
</tr>
<tr>
<td>Country C</td>
<td>8</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td>Country D</td>
<td>1</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>Country E</td>
<td>2</td>
<td>23</td>
<td>55</td>
</tr>
</tbody>
</table>
Conclusions- Team Skills and Model Development

• Overall excellent progress by most teams
• Much improved facility and understanding
• Calibration improved
• More questioning needed internally
• Documentation needs (Teams agreed)

Conclusions - Policy Study Reports

• All significant topics
• Considerable team effort and engagement
• Quality of several studies was commendably high.
• Emerging follow-up research agendas
• Significant regional collaboration in Regional Studies
• Overall regional technical achievement impressive
To Conclude

- Need for technical QA for this scale project
- Project Achievements principally earned by the participants
- Despite developing country context, some excellent technical progress
- A formal Quality Assurance framework has helped
- Some Issues noted for Markal Software