Follow-Up Monitoring and Evaluation for National Research and Development at NEDO –Part 1–

~Results from Follow-up Monitoring in FY2004&FY2005~

American Evaluation Association Conference
November 3, 2006

Setsuko Wakabayashi
R&D Project Evaluation Dept.
Shuji Yumitori, Takahisa Yano, Kazuaki Kohmoto

New Energy and Industrial Technology Development Organization
Contents

- Overview of Follow-up Monitoring and Evaluations at NEDO
  - Objectives
  - Method
  - Target
- Results of Follow-up Monitoring in FY2005
- Results of Simplified Monitoring in FY2004&FY2005
- Results of Detailed Monitoring in FY2005
- Conclusion
NEDO started a new initiative, Follow-up Monitoring & Evaluations, in FY2003.
The initial focus of our follow-up monitoring was to show how results from our R&D Projects were generating outcomes.

The monitoring results in FY2004 showed that NEDO projects generated significant progress towards outcomes. In FY2005, as we entered the second year of the monitoring, we expected to see improvement in outcomes. However, the results did not show such improvement. Why? What happened?
Objectives of Follow-up Monitoring & Evaluation are:

- **Assess the technological impact of NEDO’s R&D projects** in relevant fields. This can be assessed by monitoring post-project activities of project participants with regard to practical applications of R&D achievements.

- **Serve as lessons for NEDO to improve its R&D management.** Lessons can be learned by reviewing past post-project evaluations and post-project activities.

- **Contribute to the planning of future R&D strategies** by understanding technology trends in post-project research activities.
### Overview of Follow-up Monitoring and Evaluations at NEDO(2)

#### Process

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Preliminary Preparation** | Preparation for survey and evaluation  
   1) Setting final post-projects goals (Research, Development, Practical application, Commercialization)  
   2) Selection of personnel |
| **Step 1】 Simplified Monitoring** | Understand the current situation of an organization’s activities  
   1) Conduct annually for five years  
   2) Gather data (Patents, publications, awards, competitive situation, collaboration with academics, etc.) |
| **Step 2】 Detailed Monitoring** | Detailed monitoring based on simplified monitoring  
   Questionnaires or interviews (Sales amount, market share, reason for discontinuance, reason for success, contribution to job creation, establishment of a new enterprise, contribution to the acceleration of R&D, other spin-off effects, etc.) |
| **Step 3】 Evaluation** | Evaluation based on the information collected above  
   1) Assess the impact of NEDO’s R&D projects  
   2) Improve R&D management  
   3) Plan future R&D strategies |

**Immediately after completion of the project**

**Once a year, over five years in principle**

**In case of Practical application, Commercialization or Discontinuance**

**Discussion at NEDO Subcommittee to draw lessons (2-3 times a year)**
Overview of Follow-up Monitoring and Evaluations at NEDO(3)

Target Projects and Entities

- **Target Projects**
  - 56 projects in FY2004
  - added 54 projects in FY2005

- **Target Entities**
  - All participants (Private companies, research institutes, public entities, universities)
  - 513 entities in FY2004
  - added 576 entities in FY2005

Completed year

<table>
<thead>
<tr>
<th>Completed year</th>
<th>FY2001,FY2002</th>
<th>FY2003</th>
<th>FY2004</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>56</td>
<td>33</td>
<td>21</td>
<td>110</td>
</tr>
<tr>
<td>Entities</td>
<td>513</td>
<td>393</td>
<td>183</td>
<td>1,089</td>
</tr>
</tbody>
</table>

Monitored in FY2004

Monitored in FY2005
Preliminary Preparation

Target projects: 21 projects completed in FY2004
183 responses have been received to date.
Data is summarized below;

<table>
<thead>
<tr>
<th></th>
<th>Private Companies</th>
<th>Research Institutes</th>
<th>Public Entities</th>
<th>Universities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitored Entities</td>
<td>94</td>
<td>15</td>
<td>19</td>
<td>55</td>
<td>183</td>
</tr>
<tr>
<td>Respondent (Rate)</td>
<td>87(93%)</td>
<td>13(87%)</td>
<td>19(100%)</td>
<td>44(80%)</td>
<td>163(89%)</td>
</tr>
</tbody>
</table>
Results of Follow-up Monitoring in FY2005(2)

Simplified monitoring

Target projects: 56 projects completed in FY2001 and 2002
33 projects completed in FY2003

790 responses have been received to date.

Data is summarized below;

<table>
<thead>
<tr>
<th>Completed in FY2001, FY2002</th>
<th>Monitored Entities</th>
<th>Private Companies</th>
<th>Research Institutes</th>
<th>Public Entities</th>
<th>Universities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent (Rate)</td>
<td>335(98%)</td>
<td>11(100%)</td>
<td>9(100%)</td>
<td>89(59%)</td>
<td>444(87%)</td>
<td></td>
</tr>
<tr>
<td>Completed in FY2003</td>
<td>Monitored Entities</td>
<td>240</td>
<td>15</td>
<td>17</td>
<td>121</td>
<td>393</td>
</tr>
<tr>
<td>Respondent (Rate)</td>
<td>235(98%)</td>
<td>14(93%)</td>
<td>14(82%)</td>
<td>83(69%)</td>
<td>346(88%)</td>
<td></td>
</tr>
</tbody>
</table>
Results of Follow-up Monitoring in FY2005(3)

Detailed monitoring

Target entities: Private companies who responded that the current project status was “at commercialization (including “practical application””), “discontinued”, or “no post-project activity” in either simplified monitoring or the preliminary preparation

123 responses have been received to date.

Data is summarized below;

<table>
<thead>
<tr>
<th>Completed in FY2001, FY2002</th>
<th>Monitored Entities</th>
<th>Commercialization</th>
<th>No Post-project activity</th>
<th>Discontinued</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent</td>
<td>6</td>
<td>14</td>
<td>8</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Completed in FY2003</td>
<td>Monitored Entities</td>
<td>29</td>
<td>66</td>
<td>13</td>
<td>108</td>
</tr>
<tr>
<td>Respondent</td>
<td>27</td>
<td>43</td>
<td>9</td>
<td></td>
<td>79</td>
</tr>
<tr>
<td>Completed in FY2004</td>
<td>Monitored Entities</td>
<td>—</td>
<td>21</td>
<td>—</td>
<td>21</td>
</tr>
<tr>
<td>Respondent</td>
<td>—</td>
<td>16</td>
<td>—</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>Monitored Entities</td>
<td>36</td>
<td>112</td>
<td>25</td>
<td>173</td>
</tr>
<tr>
<td>Respondent (rate)</td>
<td>33(92%)</td>
<td>73(65%)</td>
<td>17(68%)</td>
<td></td>
<td>123(71%)</td>
</tr>
</tbody>
</table>

Discontinued

No Post-project activity

Commercialization

Total
Results of Simplified Monitoring in FY2004&FY2005(1)

Entity (Private company) Basis Analysis (Completed in FY2001&FY2002)

Post-project activity:
Any activities the research entities have conducted after completion of NEDO Project

There appears to be no improvement in the commercialization rate in FY2005 compared to the previous year.
The progress of post-project activities toward commercialization stage does not correlate with the time.

* circled numbers: number of companies which changed the status of post-project activities
  blue: progress, red: retrogress
Analysis(1)—Reason for “Discontinued” / “What type of technology or product did companies research?”

◆ “Reason for “Discontinued””
  - To start new research on other topics,
  - Unable to overcome a cost problem, or
  - Not accepted by internal business sections/departments

◆ “What type of technology or product did companies research?”
  - Those technology or product which could lead to new market developments, or
  - Those technology or product which could improve the performance/function of existing products

Companies that discontinued their research failed to fill the gap between research and market.  = Valley of Death Problem
Results of Detailed Monitoring in FY2005 (2)

Analysis(2)~ “Management of and post-project Support for NEDO projects”

Q1. “How was NEDO’s management of the NEDO projects?”
A1. “Appropriate”

Q2. “What type of assistance could NEDO have provided in order to avoid discontinued research activities?”
A2. “Nothing”

Q3. “Is there any possibility of restarting research activity again in the future?”
A3. “Not likely, because of uncertain market needs and the difficulty of market projection”

There might be a possibility of restarting the research activity, but no one knows when.
Conclusion

◆ The number of private companies whose post-project activities reached commercialization stage did not increase from FY2004 to FY2005.

◆ Some companies have made progress, but almost the same number of companies have regressed.

◆ We need to find out how to decrease the number of “regressing” companies through Detailed Monitoring.

*Improve our management mechanisms to generate more outcomes continuously.*
Thank you very much for your kind attention!

To be continued…