Monitoring, Evaluation and Impact of Research Projects

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School of Health and Social Care
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1. Definitions
   * Monitoring
   * Evaluation
   * Impact
   * Results
   * A monitoring framework

2. Monitoring and Evaluation Frameworks
   * Results-based Management
   * Outcome mapping

3. Experience: Impact of a scientific project (India)
M & E Needs
Monitoring, evaluation and impact

**As Management Functions**

- Financial/Administrative aspects
- Policies
- Quality
- Accountability

**As Research Functions**

- Human Well-being change
- Can be systematic
  - Baselines/
  - Benchmarks/
  - targets
- Can be learning oriented
  - S.>>>S
- Quality + Relevance
  (societal transformation)
Management Cycle of a Research Project

Lessons Learnt → Lessons learnt → Project Design

Data Collection → Monitoring Plan → Reporting

Evaluation → Decision-making process

Lessons Learnt

Data Collection

Monitoring Plan

Reporting

Evaluation
M & E Levels to Be Articulated

Global Research Agenda

Outputs
Outcomes
Impacts

Project
Programme
Research Body

Outputs
Outcomes
Impacts

Inf. Technology

Project documents
Work-plans
Monitoring plans
Annual reports
Project documents
Quarterly reports
Monitoring is a CONTINUING activity that aims primarily to provide INDICATIONS of progress, or lack thereof, in the achievements of results.

Evaluation is a time-bound exercise that attempts to ASSESS systematically the RELEVANCE/PERFORMANCE AND SUCCESS of a project.

Participatory Monitoring is the process in which the project RECIPIENTS and all other stakeholders become ACTIVELY INVOLVED in the implementation and regular checking of project progress or lack of it.

Participatory Evaluation is the ACTIVE COLLECTIVE examination of a project by all stakeholders in which project recipients become not just mere objects of evaluation but also agents of evaluation.

SERVICE USERS & Others
Impact Assessment

“Impact concerns long term and sustainable changes introduced by a given project or intervention in the lives of people.”

It can be related either to the specific objectives of a project or intervention or to unanticipated changes caused by the project or intervention.

“It can be either positive or negative, the latter being equally important to be aware of.”

Blankenberg 1995
Types of Impact

Impact

- anticipated
- anticipated change (in the long term)

Types

- Scientific
- Cultural
- Economic (people)
- Political
- Social
Social Sciences

Economics (Transactions)
Political Science (Power relations)
Sociology (Society)
Psychology (Mind)
Anthropology (Culture)
Communication (Dialogue)
Linguistics (language as a social tool)
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements about PURPOSES and ENDS</td>
<td>Completion of ACTIVITIES</td>
<td>Actual Intended CHANGES in Development Conditions (Partners)</td>
<td>Long-term ACHIEVEMENTS</td>
</tr>
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<td></td>
<td>Specific Products Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>&quot;Outputs&quot;</td>
<td>Development Gains</td>
<td>Well-being Gains</td>
</tr>
<tr>
<td></td>
<td>Contraception clinic established</td>
<td>Participation in decision making by men and women regarding contraception increased</td>
<td>Contraception clinic services for poorer (women) sections of the population improved</td>
</tr>
</tbody>
</table>

Example: Contraception clinic estabished
## Causal vs Sequential Thinking

<table>
<thead>
<tr>
<th>Tip</th>
<th>Causal Thinking</th>
<th>Sequential Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>In order to</td>
<td></td>
<td>First</td>
</tr>
<tr>
<td>If…then</td>
<td></td>
<td>Following</td>
</tr>
<tr>
<td>Through</td>
<td></td>
<td>Before</td>
</tr>
<tr>
<td>By</td>
<td></td>
<td>After</td>
</tr>
</tbody>
</table>
Tip

Use action verbs whenever possible

installed
constructed
strengthened
reduced
increased

supported/developed
enhanced
Tautology (redundancy)

- Tip
- THEN (Tautology)
  \[\text{A strengthened institution}\]

- THEN (Value-added)
  \[\text{The institution’s PERFORMANCE in delivering research services is improved.}\]

- If we build the institution’s capacity for delivering research services

- If we build the institution’s capacity for delivering research services
Results Based Management

- **Inputs**
  - Experts
  - Equipment
  - Funds

- **Outputs**
  - People trained
  - Studies completed

- **Outcomes**
  - Jobs created
  - Incomes increased
  - Gender equity obtained

- **Impact**
  - Conditions improved
  - Health/longevity/low income/satisfaction/human development
<table>
<thead>
<tr>
<th><strong>A Monitoring Plan (P)</strong></th>
<th><strong>RESULTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Results</strong></td>
<td>Activities Outputs</td>
</tr>
<tr>
<td></td>
<td><strong>Indicators</strong></td>
</tr>
<tr>
<td><strong>2. Indicators</strong></td>
<td>Baseline/Benchmarks/Targets</td>
</tr>
<tr>
<td><strong>3. Data collection</strong></td>
<td>Formats</td>
</tr>
<tr>
<td><strong>4. Reporting requirements</strong></td>
<td>Service users/implementers/researchers Managers/funders</td>
</tr>
<tr>
<td><strong>5. Responsibilities</strong></td>
<td>Crucial M &amp; E Activities (steering meetings, quarterly meetings, annual meetings)</td>
</tr>
<tr>
<td><strong>6. Schedule</strong></td>
<td>5 to 10% of the Budget for Monitoring</td>
</tr>
</tbody>
</table>
Indicators

While RESULTS define what we want to achieve, INDICATORS indicate how we observe in order to verify whether, or to what extent, it is true that progress is (or is not) being made.

Indicators require clarity about the issue we are addressing BEFORE and AFTER any interventions.
**Target:**
It is the situation at the end of a project

**Milestones:**
They correspond to expected PERFORMANCE at periodic intervals

**Baseline:**
It is the starting point for monitoring RESULTS
Examples

Qualitative indicators

Existence policy recommendation formulated? submitted? approved? local governance act passed? (yes or no)
Category (for example X or Y or Z) poverty analyzed in the west region? locally? nationally?
Level of focus of an initiative on sustained human development high? medium? low?

Quantitative indicators

Number: of service users trained/ of new jobs in small Enterprise area
Percentage: share of government budget devoted to training/ share of rural population with access to basic health care
Ratio: of female to male health services enrollment/ of trainers per Institution, project.
Indicators

Substance & practicality

The following criteria and questions may be useful in selecting indicators:

**Valid:** does the indicator capture the essence of the expected result?
**Practical:** are data actually available at reasonable cost and effort?
**Precise meaning:** do stakeholders agree on exactly what to measure?
**Clear direction:** are we sure whether an increase is favorable or unfavorable?
**“ Owned”:** do stakeholders agree that this indicator makes sense to use?
Data Collection

Where are the sources of information/data?

* Public records (passage of a legislation/public statistics)

* Internal records (data-base of the project -- number of seminars conducted, number of people trained, policy recommendations submitted to local, regional national authorities)

* Development of instruments and/or establishment of routines for capturing information
Data Collection

Tools

* Awareness/attitude surveys and questionnaires
* Expert panels
* Key informant interviews (i.e. principal trainers / training experts)
* Focus groups
* Mapping techniques
* Documentaries (testimonial records)
* Case-studies
Data Collection

* Triangulation: a process of cross-checking and cross-validating by talking with and referring to various sources of information

* Stratified sampling: a selection that ensures representation of a cross-section of a community according to such characteristics as age, gender, sexual orientation, social class or ethnicity
Reporting

It is an integral part of monitoring RESULTS and it should be concise, precise, systematic and timely.
# Roles and Responsibilities

<table>
<thead>
<tr>
<th>Project title</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>M &amp; E Activities</td>
<td>Maria</td>
</tr>
<tr>
<td>Draw Eval. ToR</td>
<td>I</td>
</tr>
<tr>
<td>Organise M workshop</td>
<td>E</td>
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<tr>
<td>Recruit auditing team</td>
<td>I</td>
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<tr>
<td>Field visits coordination</td>
<td>E</td>
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<tr>
<td>ACTIVITY/ YEAR</td>
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<td>5</td>
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<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>M &amp; E actions during DOCUMENT preparation</td>
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<tr>
<td>Participatory monitoring plan</td>
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<tr>
<td>Work plan elaboration</td>
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<tr>
<td>Quarterly reports (process/financial)</td>
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<tr>
<td>Audit (social audit) gender aspects</td>
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<tr>
<td>Monitoring field visits (data collection)</td>
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<tr>
<td>Annual project report (data analysis)</td>
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<tr>
<td>Stakeholders review meeting</td>
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<tr>
<td>Mid term (participatory) evaluation</td>
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<tr>
<td>Final (participatory) evaluation/impact assessment</td>
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<tr>
<td>Terminal report</td>
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<tr>
<td>Ex-post evaluation</td>
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</table>
RBM Phases

- Defining clear and measurable objectives (results)
- Choosing indicators to measure progress
- Setting explicit targets for indicators

Results-oriented planning or strategic planning

- Developing performance monitoring systems (data collection)
- Reviewing and analysing results

Performance measurement

- Integrating evaluations
- Using performance information for internal management, learning and decision-making processes

Results-based management system
SRF describes main results to be achieved according to goal, sub-goals, strategic areas of support, period of time, type of results (outputs, outcomes, impacts) and indicators.

(Case: UNDP/India)
6 Goals (Poverty/Environment/Gender/Governance/UN System/Special Development Situations)
11 Sub-goals = 11 Outcomes
2001-2003
The Performance Tool:
Result Oriented Annual Report (ROAR):

ROAR reports on performance and progress of results achieved.

(Case: UNDP/India)

# Results-Based Management (RBM) Tools

## The Management Tool: Plan of Evaluations

<table>
<thead>
<tr>
<th>Agents</th>
<th>Scope</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal agents (P)</td>
<td>Programme, Project, Sector, Thematic, Policy, Process and/or Results</td>
<td>Mid term, Final, Ex-post (impact assessment)</td>
</tr>
<tr>
<td>External agents</td>
<td></td>
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</tbody>
</table>
Development Evaluation
UN, EC, DFID, World Bank

- **Relevance**: the extent to which an intervention is consistent with the policies and priorities of each of the major stakeholders

- **Effectiveness**: the extent to which an intervention achieves its objectives at the **Purpose** and **Goal** level

- **Efficiency**: the relationship between the **outputs** achieved and the **inputs** used

- **Impact**: all changes (positive or negative) attributable to the intervention

- **Sustainability**: the extent to which the activities, outputs and impacts will **continue** after external support has ended
<table>
<thead>
<tr>
<th>Intentional Design</th>
<th>Outcome and Performance Monitoring</th>
<th>Evaluation Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vision</td>
<td></td>
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<tr>
<td>4. Outcome challenges</td>
<td>10. Strategy Journal</td>
<td></td>
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<tr>
<td>5. Progress markers</td>
<td>11. Performance Journal</td>
<td></td>
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<tr>
<td>6. Strategy maps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Organisational Practices</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Outcome Monitoring

<table>
<thead>
<tr>
<th>The progress of partnerships towards the achievement of outcomes</th>
<th>The programme/project strategies to support outcomes</th>
<th>Organisational practices used</th>
</tr>
</thead>
</table>

Outcomes “Changes in the behaviour, relationships, activities, and/or actions of a partner that can be logically linked to a programme/project (although not necessarily caused by it.”
<table>
<thead>
<tr>
<th>RBM OM</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outputs</td>
<td>Outcomes</td>
<td></td>
</tr>
<tr>
<td>RBM OM</td>
<td>Cause</td>
<td>Effect</td>
<td>Effect</td>
</tr>
<tr>
<td>OM</td>
<td>Relation</td>
<td>Effect (Attribution)</td>
<td></td>
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<tr>
<td></td>
<td>Partners</td>
<td></td>
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<tr>
<td>RBM OM</td>
<td>Changes</td>
<td>Changes</td>
<td>Changes</td>
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<tr>
<td>OM</td>
<td></td>
<td></td>
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<tr>
<td>RBM OM</td>
<td>Accountability/Learning</td>
<td></td>
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<tr>
<td>OM</td>
<td>Learning/self assessment</td>
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</table>
Impact Monitoring of a Scientific Project Oriented towards Poverty Lessening through the Development of Three Open-pollinated Seed Varieties Resistant to Tomato Leaf Curl Virus (ToLCV) in South India
The Scientific Project

General Objective

In 2002 three new types of virus-resistant open-pollinated seeds – Nandi, Sankranthi and Vybhav were developed and released commercially by the partnership of:

* The University of Agricultural Sciences Bangalore (India),
* The Natural Resources Institute of the University of Greenwich (UK),
* and The Asian Vegetable Research and the Development Centre (Taiwan).
The Scientific Project

Since 2002

The project was concerned with the dissemination and promotion of the major results among stakeholders such as farmers, researchers, universities, government and private companies.
The Scientific Project

Challenge:
Designing an impact monitoring model for the project

Role clarification among various stakeholders

Impact pathway monitoring (results-based management framework)
### WHICH ACTORS, FOR WHAT?

<table>
<thead>
<tr>
<th>Dissemination and promotion of research results</th>
<th>Promotion (Encouragement to stakeholders in Karnataka and other states to use ToLCVs)</th>
<th>Dissemination (Spreading information about ToLCVs)</th>
<th>Uptake (Farmers using the ToLCVs seeds)</th>
<th>Adoption (ToLCV seeds integrated into regular farming of farmers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Companies</td>
<td>Are they involved in promotion? If yes, how?</td>
<td>Are they involved in dissemination? If yes, how?</td>
<td>Yes, how and where?</td>
<td>Yes/No?</td>
</tr>
<tr>
<td>NGOs</td>
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<tr>
<td>Public extension services</td>
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<tr>
<td>University</td>
<td></td>
<td></td>
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<tr>
<td>Farmers</td>
<td></td>
<td></td>
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<tr>
<td>Credit Institutions</td>
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<tr>
<td>Government agencies</td>
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<td></td>
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<tr>
<td>Mass media (TV, radio, newspapers)</td>
<td></td>
<td></td>
<td></td>
<td>Garforth and Norrish</td>
</tr>
</tbody>
</table>
Traditional approach to IA

- Investment: Physical benefits
- Cost: Benefit
- Quantification: Validation of impacts
- Time: (Ex-ante & Ex-post evaluation)
New dimensions to IA

- While a project is unfolding
- People’s participation (service users involvement)
- Equity/equality (gender, ethnic minorities)
- Sustainability (capacity building/ financial)
- Environmental friendly interventions

HUMAN WELL BEING/ECOSYSTEM
Time (paths to impact)
Impact pathway Monitoring

Mapping

Strength of the impact – (at the service users level, institutional, project level)

Gestation period (time from the moment in which the seeds were to released to the moment in which the farmers used the seeds)

Visibility (small farmers)

Stakeholders (who has being benefiting the most?)
Monitoring Impact

Impact Pathways

SOCIO-ECONOMIC IMPACTS
Seeds

FARMERS

PRIVATE SECTOR

UNIVERSITY & GOVERNMENT

NGO’s
Monitoring Impact

Monitoring Tools

**FARMERS**
- BASELINE SURVEY (75)
- FARMERS GROUPS (6)/(3)

**UNIVERSITY & GOVERNMENT**
- The National Seed Project (NSP)
- QUESTIONNAIRES/VISITS
- The Agricultural Technology Information Centre (ATIC)
- QUESTIONNAIRES/VISITS

**NGO's**
- QUESTIONNAIRES/VISITS

**PRIVATE SECTOR**
- SEEDS COMPANIES
- VISITS/FORMS
- PHONE CALLS
- NGO's QUESTIONNAIRES
SURVEY (75 farmers, 2003) Before the seed were used

• Male farmers
• Paddy (rice), tomato and sugarcane
• Difference between marketing and hybrids and open-pollinated
• Preference for open-pollinated tomatoes for their own consumption (taste)

Both men farmers and women farmers take care of the crops at the planting, cultivation and production stages. However, it is mainly the men who take care of the marketing of all crops in general and tomatoes in particular.

The farmers spend quite a lot of money buying pesticides to kill the whitefly vector of ToLCV. During discussions with them prior to the baseline, it was observed that the farmers were using pesticides 7 to 8 times during a crop cycle lasting 80 days on average in order to manage ToLCV.
RESULTS & LESSONS

SURVEY (75 farmers, 2003) Before the seed were used (Contd)

• At the moment of the survey almost all farmers did not have information about the existence of resistant seeds to ToLCV.

• Sources of information: they were chemical dealers, extension services, seed companies, experienced farmers, family members and radio and TV.

Expenditure:

• The highest was social occasions (Rps18, 582)/

• Buying pesticides (negative impact on health and economy of producers and consumers)
Three basic tools: the questionnaire used in the baseline, a checklist designed to follow their livelihood issues and a detailed monitoring form about the cost of cultivation of the project varieties and two other contrasting open-pollinated varieties such as PKM and Ruchi.

The groups using the three resistant varieties for the first time, were interviewed in average three to four times while the cultivation was going on.

The three successful groups have on average 9 farmers out of 15 or 20 that started using the seeds.

Lack of water/Care of the plants

Five basic problems: water scarcity, price fluctuation, fruit borer and wilts, irrigation and electricity
<table>
<thead>
<tr>
<th></th>
<th>FARMERS GROUP 1</th>
<th>FARMERS GROUP 2</th>
<th>FARMERS GROUP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INDIAN RUPEES</td>
<td>INDIAN RUPEES</td>
<td>INDIAN RUPEES</td>
</tr>
<tr>
<td>TOTAL INCOME</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBTAINED Nandi</td>
<td>18,958</td>
<td>21,861</td>
<td>32,000</td>
</tr>
<tr>
<td>PKM</td>
<td>7,800</td>
<td>7,780</td>
<td>50,536</td>
</tr>
<tr>
<td>Ruchi</td>
<td>7602</td>
<td>8,627</td>
<td>16,333</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td>NET PROFIT</td>
<td></td>
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</tr>
<tr>
<td>Nandi</td>
<td>8,192</td>
<td>9,963</td>
<td>16,556</td>
</tr>
<tr>
<td>PKM</td>
<td>1,055</td>
<td>1,077</td>
<td>29,278</td>
</tr>
<tr>
<td>Ruchi</td>
<td>410</td>
<td>842</td>
<td>3,153</td>
</tr>
</tbody>
</table>
• Scientists get to appreciate the social, political and economic dimensions of their scientific work.

• *It is important in scientific projects to differentiate the techno-scientific aspects from the social ones since the two imply different subjects.*

• The social technique of questionnaire has to be complemented with techniques that provide more in depth data. The initial baseline did not allow the project to appreciate fully all the possible economic, social and health-environmental impact(s) of the project. Only after frequent visits and interviews with the farmers all those issues emerged more clearly.
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Scientific papers published</td>
<td>8 Abstracts/ 23 papers</td>
</tr>
<tr>
<td>2. Master in Science (M. Sc) and Philosophy</td>
<td></td>
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<tr>
<td>Doctoral’ theses (PhD).</td>
<td></td>
</tr>
<tr>
<td>Department of Agronomy</td>
<td>2 M. Sc</td>
</tr>
<tr>
<td>Department of Genetics and Plant Breeding</td>
<td>6 M. Sc/ 2 Ph. D</td>
</tr>
<tr>
<td>Department of Seed Science and Technology</td>
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</tr>
<tr>
<td>Department of Entomology</td>
<td>2 M. Sc</td>
</tr>
<tr>
<td>Department of Plant Pathology</td>
<td>1 M. Sc</td>
</tr>
<tr>
<td>3. International Conferences</td>
<td>15 M. Sc/8 Ph. D</td>
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<td></td>
<td>18</td>
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</tbody>
</table>
Many of the traditional research activities done such as publication of papers, elaboration of theses, conference presentation and even collection of pictures were seen as in need of taking a different communicational role. This role was, furthermore, related to the demonstration of evidence of impact and visibility in times of low resources to public institutions and need of innovative practices.
5 NGO’s working on rural issues in the areas of Karnataka and Maharastra were contacted with the purpose of helping in the promotion and dissemination of the seeds. However the efforts were not successful.

Lesson:
Need to create awareness about the different although complementary work between research on development and development projects. NGO’s in general do not get involved in research directly and universities do not get involved in the day to day activities directly with rural communities.
• Until June 2005 eleven small and mid size Indian seed companies had bought the seeds going beyond the initial modest expectation that only two or three companies will buy the seeds.

• Until June 2005 the project has sold 59 grams equivalent to 173,750 Indian Rupees.

• Until June 2005 the seed companies reported that they were not experiencing the ToLCV disease and, also the majority of them stated that they will try the three resistant varieties mainly in the development of Hybrids. None company confirmed the use of the seeds in developing open-pollinated seeds.

Lesson:

The main lessons learnt by the project in its work from the private sector came from the sharing of material at very early stages of the research.
Lack of infrastructure for storage and processing of tomatoes

Price instability and wide oscillation in prices (between Rupees 5 per kilo and 50 paisas a kilo in the case of the open-pollinated variety) in a matter of days within the same season.