Appendix V

FINAL REPORT

I	**The Name of the Institution to be evaluated**	***National Institute of Research&Development for Machines and Installations Designed to Agriculture and Food Industry (INMA Bucharest)***
II	**Evaluation Period**	*10 – 11 September 2013*
III	**Members of the Team**	
	1st Evaluator information	
A	**Name, Surname**	**Nikolaos SYGRIMIS**
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B	**Affiliation**	*"Politehnica" University Timisoara, Romania*
	4th Evaluator information	
A	**Name, Surname**	**Sergio Matteo SAVARESI**
B	**Affiliation**	*Politecnico di Milano, Italy*
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I. CONCLUSIONS AND RECOMMENDATIONS

The evaluation panel has assessed the National Institute of Research & Development for Machines and Installations Designed to Agriculture and Food Industry (INMA, Bucharest) during 10-11 September 2013. The panel received oral presentations from the management body and team leaders, discussed with the management, team leaders, phd-students, etc. as well as visited and looked over the various research facilities and other infra-structures. The following summary presents the overall strengths and weaknesses of the institute, as concluded and agreed by the panel.

Strengths:

- An impressive range of research/test facilities offering good opportunities for quality research at both fundamental and applied research, however predominantly at the applied level.
- Keen recognition of the importance of publishing and patenting at international level. In terms of spin-off activities, an incubator has been set up. At the national level, the institute is very effective in dissemination of research results.
- The different research teams seem highly flexible in research undertakings and the individual researcher (especially younger researchers) came across as highly motivated, which is promising well for future research strategies and directions. Good team spirit was observed.
- The management and administrative staff clearly support and frame the research activities through a cooperative and efficient behaviour.
- The institute has a considerable non-exploited potential residing within its research staff and associated infrastructure, which bears well for the fulfilment of strategies in the proposed development plan.

Problem areas:

- Eventhough making the research efforts international is recognised, the capability of delivering high-level research activity at international level is currently limited. Insufficient English communication skills are a significant problem, specifically for senior researchers, and this might slow down the development process.
- There is a tendency to non-focused research activities, thus diversifying the efforts over multiple research teams.
- Not enough economic incentives to encourage motivation for advances in the scientific undertakings.
- An under-exploitation of the infra-structure and test/experiment facilities is observed, due to focusing to incremental, rather small, machine improving development efforts. There are no major aims targeting breakthroughs for the national or international status of the sector.
- The fact that there is limited research communication with the outside world, the inhouse research remains focussed on the old fields of machinery improvements which leads to research results being incremental improvements within the traditional machinery sector. Significant efforts must be invested to alter this state. Students and grads are quite capable to bring this change about by going for international exchanges (Erasmus etc) or postdocs and bring back new subject areas and contacts.
- The decision making process for research initiatives and project applications on the operational level seems to be transparent and the different staff categories seems to have relevant influence

on the decisions. However, the ability to make significant and innovative strategic decisions must be improved, probably by instituting internal brainstorming seminars.

Recommendations:

- The institute has the potential for high-level research, but this requires support and training from outside if results are expected in the short time frame (2-3 years). Strong incentives for innovative solutions leading to patenting and publishing at international level should be enforced. English skills must be strongly improved and international networks must be developed. Also, in terms of research focus, an upgrade and modernization from pure mechanical engineering to ICT and bio-systems engineering should be enforced by mobilizing appropriate new manpower.
- In terms of staff composition, a generation shift especially on managing and senior staff should be encouraged together with the enforcement of high-level English skills. This also includes enhanced communication and presentation skills. Establish incentives to hire the best young researchers with international experience and an increased infusion of international professionals should be encouraged. PhDs must be encouraged to take up appropriate outside postdocs and return to take position as vice-chairs with senior faculty members.
- The institute should initiate the "selling" of services based on its infrastructures to large international companies (in order to get revenues that can be used to finance internal R&D projects). In principle, this should be feasible, given the overall low cost of the infrastructure, especially if formalised by establishing a dedicated office to promote the exploitation of the infrastructure. In continuation of such initiatives, specific test-bed technologies should be modernised. The biofuels testbed i.e. is ready to "sell" services but also conduct research in a field that is currently in focus and relatively easy to enter.
- Improve economic incentive mechanisms for developing outstanding researchers. At the same time, promote state-of-the art benchmarking at international level.
- On the strategic level, push a significant change in the overall strategy of the institute by concentrating and focusing on fewer major research streams which are internationally relevant. In the short run, limit consulting activities or projects on low-tech collaborations and expand new areas (i.e. energy, food and bio-systems engineering were shown to have enough capacity at an international level).

II. EVALUATION OF TEAMS

The presentations of the research teams were re-organized during the visit. Only a part of the 16 research teams has actually been presented with sufficient details and results. The evaluation will be focused as follows on these research teams but the comments can be distributed over all research teams. The efforts of the evaluation team have been concentrated on the overall activities and results of the institute. However, the comments of the evaluation team presented in Sections I and III of this report are applicable to all research teams. This is also valid for the comments related to the evaluated research teams presented as follows as they can be easily translated from one of the teams to other research teams in the framework of the comments for the whole institute.

In addition, the evaluation team considers that 16 research teams are too much. This splitting of researchers has resulted in a too large number of teams. The re-structuring of the teams is advised in