

## FINAL RAPORT

<b>I</b>	<b>The Name of the Evaluated Institution</b>	National Institute for Research and Development In Construction, Urban Planning and Sustainable Spatial Development (URBAN INCERC Bucharest)
<b>II</b>	<b>Evaluation Period</b>	14 -:-17 May, 2012
<b>III</b>	<b>Members of the Team</b>	
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	<b>4<sup>th</sup> Evaluator information</b>	
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## Conclusions and recommendations

### Structure and missions of INCD URBAN INCERC

The structure of URBAN-INCERC institute is constituted of 26 teams, clustered in 15 divisions, grouped in 5 branches. They have two work fields of strategic interest for Romania:

#### 1. *Safety:*

- seismic engineering for earthquake protection,
- structural engineering for building stability,
- spatial planning for flooding,
- thermal sciences for extreme weather conditions (-35° to +45°C),
- material sciences for fire and earthquakes.

#### 2. *Efficiency in construction sector:*

- urban planning for functioning of cities (traffic, comfort, etc.),
- energy efficiency for mitigate the climate change and support the post-oil transition,
- material sciences for healthy finishing work in construction,
- acoustics for noise protection (especially traffic and indoor noise propagation) and quality of hearing (special buildings e.g. opera, conference halls).

This institute has two important missions:

- regulatory oriented work as advisor of the concerned ministries in order to implement new construction regulations or improving the existing ones,
- research and innovation.

In these key-areas, the Institute has a good expertise and results in the elaboration of strategic plans, pre-normative research, norms and regulation, and tests for accreditation. Consequently, URBAN INCERC completely fulfills the first of the two missions. However, an important effort is necessary to develop internationally recognized scientific competences in order to fulfill the whole missions covered by URBAN INCERC.

This institute, in its present form, is the result of the merging of URBAN PROIECT and INCERC that happened two years ago. This new administrative situation and the present economic crisis are factors that slowed down the investment in research and the multiplied the contracts for firms. But another factor, which is essential, is that there is no discrimination between missions, so that the research mission has been narrowed to the essential to the detriment of the regulatory mission and service contracts.

### Infrastructure, staff and management

The infrastructure is adequate and the staff makes efforts to develop it, especially by using internal skills. More research facilities would be needed.

It can be felt a strong legacy of the merging between URBAN PROIECT and INCERC, which has not been achieved yet, resulting in lack of synergy between some of the teams so far. This results in an impressive number of laboratories, dispersing the energy and artificially increasing the bureaucratic work. Despite this, the staff acts professionally and many persons and teams are very enthusiastic. Nevertheless, research project directors are needed to develop the scientific competences to balance

the work, funds and time between regulation and pre-normative labor, and R&D.

The new top management is aware of the strengths and the weaknesses of the institution. The cooperation with the relevant Direction of the Ministry of Regional Development and Tourism (MDRT) is effective and useful. However, the institutional frame does not permit any novelty, and some relative autonomy should be given for the management of the institute to be able to build internal regulations, such as a code of ethics, or a recruiting policy. Cooperation at management level with other similar European institutions and direct advice from internationally recognized experts would be beneficial for the top management.

Summing up, URBAN INCERC institute is of public interest, with good activities in strategic studies, norms and regulations, equipped with accredited laboratories for normative tests. The research activity, infrastructure and human resources need improvement. Being an institution of major public interest, it needs recurrent financing from the tutelary Ministry in order to elaborate objective and unbiased national strategies, safety norms and regulations.

## Report of the assessment visit

### *Note on the structure of the report*

The evaluation team considers that the *Report of the assessment visit* justifies the mark awarded to the institute as a whole, highlights the strengths and weaknesses, and gives recommendations for each of the five criteria. The report gives specific remarks about some branches, divisions and teams, when this was considered appropriate.

The evaluation team opted for a report on the whole institute and not for separate observations for every team, division or branch. The main reason for this choice is that, in our opinion, the institute needs to create synergies between the teams and not to be a sum of separate entities (i.e. teams, divisions, branches). Besides from being unachievable in the time allocated to the evaluation visit, an analysis of each of the 26 teams, 15 divisions and 5 branches would create a dynamic of internal competition and segregation which would be counterproductive to the development of the institute as a whole.

	Criterion	Proposed marks
<b>C<sub>1</sub></b>	<b>The quality of R&amp;D activities and their results</b>	<b>3</b>
	<b>Indicators:</b>	
<b>CI.1</b>	<b><i>Publications and patents</i></b>	
	It was reported, in the self assessment report, 523 publications, from which 53 were in proceedings of international congresses, 44 books (from which 4 are in international publishing houses), and 17 chapters in edited books.	
	However, this impressive list of work seemed to be overestimated as: <ul style="list-style-type: none"> <li>• only 8 papers were published in ISI journals from which 3 do not have the affiliation of this institute,</li> <li>• other 5 papers were published in ISI journals that do not have an impact factor,</li> <li>• no citations of these papers could have been found in other articles,</li> <li>• only one approved patent was found, and 4 were only submitted, waiting for approval.</li> </ul> This is, without doubt, the weakest point for the results of the R&D activities of URBAN INCERC.	
<b>CI.2</b>	<b><i>Private/international funds</i></b>	
	The research teams and the management of the institute proved their ability to attract funds from Romanian private and public sources. However, very few funds from international sources and EU sources have been found during the evaluation process, raising questions about the international visibility of URBAN INCERC.	
<b>CI.3</b>	<b><i>International patents</i></b>	
	No international patent was either found in the self assessment report or presented to the evaluators.	
<b>CI.4</b>	<b><i>Start-ups and spin-offs</i></b>	
	No start-up and spin-off has ever been created by the URBAN INCERC.	
	As a National Institute, they provide the Ministry of Regional Development and Tourism (MDRT) with knowledge, know-how, data, technologies, services and strategic studies particularly to respond to EU requirements, sometimes without having a contractual obligation.	



Regulations are made in the fields of building codes, building materials, safety and earthquake. One mission of this institute is to adapt EU standards, codes and regulations to the specificity of the country.

**C1.5** | *Sharing and dissemination*

Participation mostly in national conferences.

The institute revived the journal "Constructii", issued regularly for 62 years, started a new journal (four issues a year) and a biannual conference (one is due to be held at the end of May 2012 and the next one is scheduled for October 2012).

Dissemination and popularization of science was demonstrated to the panel of experts.

*Summative Comments*

**a. General feedback**

- URBAN INCERC is a strategic institution for the nation: safety (earthquakes), urban planning, building materials characterization and testing, and energy in built environment (CO<sub>2</sub> emissions and global warming problem). The main two goals of this institution are regulations and research: the 1<sup>st</sup> is completely fulfilled and the 2<sup>nd</sup> needs major improvements.

**b. Strengths**

- Participation of the staff in the standardization and normalization activities with original contributions.
- Capacity to establish agreements with private companies.

**c. Weaknesses**

- Number and quality of publications which is very low for a National Research Institute.
- Number of patents and funds attracted by the implementation of these patents.
- High involvement in non-research activities and a relative high dependence on budgetary funds.
- The difference between research and non-research activity does not seem clear to the scientific staff.

**d. Specific recommendations**

- Invite outside internationally recognized scientific personalities as special scientific advisers of the General Director and of the Scientific Council.
- Plan strategically scientific research lines at short term. These research lines should be linked not only to the strategic interests of the country but also with the established European requirements at the 7<sup>th</sup> Framework Program. Obviously these research lines should match with enough funds, staff and facilities in order to be satisfactory developed at short term.
- Improve the journals of the institute: invite international members on the board, reduce the number of issues but increase the quality. Papers must be written in English.
- Improve the quality of the publications by choosing the recognized international journals and conferences.
- Diversifying the sources of research funds.
- Support from the Institute to the researchers who want to create spin-off and start-up companies.

<b>C<sub>2</sub></b>	<b>Human resources quality</b>	<b>4</b>
<b>C2.1</b>	<b>Performance uniformity</b>	
<p>There are 26 teams clustered in 15 divisions grouped in 5 branches. They have well defined goals but they need to increase their international competitiveness. The performance of the teams have shown to be diverse, with sometime a lack of synergy and/or communication between teams.</p> <p>It is noteworthy that the teams E7 and E8 (i.e. the Division Energy Performance of Sustainable Buildings) and the teams E18, E19 (i.e. the two teams of Construction Division of Iasi Branch) have distinguished themselves by the quality of research.</p> <p>On the other hand, most of the teams focusing the activity on the materials field are clearly away from the research concept.</p>		
<b>C2.2</b>	<b>Average age and brain gain</b>	
<p>There is a tendency to recruit after the master degree and to make the PhD in the institution as an employee, without having an international experience. Therefore brain gain is an exception as very few research staff has achieved their PhD outside the institution and/or in an internationally recognized institution.</p> <p>The average age (47) is acceptable and considerably efforts are made to attract youngsters.</p>		
<b>C2.3</b>	<b>The ratio of R&amp;D staff/administrative staff</b>	
<p>The ratio is close to 1/1, which can be considered good, but the number of high level researchers (18 CS1 and CS2) is low in comparison with the total number of researchers (110).</p>		
<b>Summative Comments</b>		
<p><b>a. General feedback</b></p> <ul style="list-style-type: none"> <li>• The research staff acts professionally.</li> <li>• Good teams in Energy and Environmental Performances of Sustainable Buildings and in Construction Division of Iasi Branch (seismic engineering and energy engineering).</li> <li>• Clear goals and guidelines for some teams.</li> </ul> <p><b>b. Strength</b></p> <ul style="list-style-type: none"> <li>• Good level of specialization in normative and regulation work.</li> <li>• Knowledge of cultural specificities useful for urban planning.</li> </ul> <p><b>c. Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Few high level researchers (i.e. CS1 and CS2).</li> <li>• Small number of researchers with international experience (many do not speak English).</li> <li>• No specialist who could act as project leader at national and international level.</li> <li>• Synergy between teams.</li> </ul> <p><b>d. Specific recommendations</b></p> <ul style="list-style-type: none"> <li>• Promote internship of young people in the institution.</li> <li>• Collaboration with researchers that fulfill the requirements for being director of research project.</li> <li>• The institute would benefit from offering possibilities to foreign researchers to come to work in the institute, even in the form of temporary appointment.</li> </ul>		

C <sub>3</sub>	Quality infrastructure and its rate of exploitation	4
C3.1	<i>Quality infrastructure</i>	
<p>The infrastructure is adequate to the present key domains of competence, but the quality is diverse. Most of the infrastructure is obsolete. Generally, it needs to be updated and adapted to research activities.</p> <p>Iasi Branch (teams E18 and E19), Energy and Environmental Performances of Sustainable Buildings (teams E7 and E8), and the team on Finishes and Polymer Products (team E9) remarked themselves by efforts in improving the equipment.</p> <p>It is important to point out that all teams make efforts to use the infrastructure at the maximal capacity and to further develop it.</p>		
C3.2	<i>Rate of exploitation (4 categories)</i>	
<p>The panel estimates that the rate of exploitation is generally over 75%, many due to external contracts, normative works and tests.</p> <p>Unfortunately, the utilization for research is rather low.</p>		
<i>Summative Comments</i>		
<p>a. General feedback</p> <ul style="list-style-type: none"> <li>• Some teams have a long term strategy to use funds raised from normative and accreditation tests to develop research infrastructure.</li> </ul> <p>b. Strengths</p> <ul style="list-style-type: none"> <li>• Good degree of exploitation.</li> <li>• Many accredited tests facilities.</li> <li>• Capacity to make the devices themselves.</li> </ul> <p>c. Weaknesses</p> <ul style="list-style-type: none"> <li>• In general, the infrastructure is rather old, with a low rate of renewal.</li> </ul> <p>d. Specific recommendations</p> <ul style="list-style-type: none"> <li>• Apply to specific national calls for infrastructure development.</li> <li>• Establish external collaborative research in order to learn about the utilization of modern and sophisticated equipments.</li> </ul>		



C <sub>4</sub>	Management efficiency and quality of the research environment	4
C4.1	<i>Staff evaluation and motivation</i>	
<p>Motivation and evaluation are correlated. It is noteworthy that the new administrative situation resulting from the merging of two separate institutions and two research centres, on one hand, and the present economic crisis, on the other hand, are factors that slowed down the investment of the staff in research by preferring contracts for firms in order to ensure fund raising.</p> <p>Some of the researchers seem to be enthusiastic, especially in the teams pointed out in the previous section (C3), but, in general the international panel of evaluators does not have enough information to evaluate the motivation.</p> <p>The panel is frustrated to not be able to obtain enough information in order to assess the evaluation procedure of R&amp;D used by the institution and the policies for stimulating the staff.</p>		
C4.2	<i>Administrative procedures</i>	
<p>The panel does not have enough information to evaluate this point.</p>		
C4.3	<i>Satisfaction of R&amp;D staff</i>	
<p>In particular, the staff of Iasi Branch look satisfied with the work and the organization. Other staff is satisfied with the work but seem to expect more from the organization.</p>		
C4.4	<i>Administrative (operational) efficiency</i>	
<p>Sometimes the acquisition procedure seems rather long.</p>		
C4.5 & C4.6	<i>Transparency of Decisions &amp; Involving staff in decision making</i>	
<p>The Iasi Branch proved to have transparency and to involve staff in decision making. The panel does not have enough information to evaluate this aspect for the other branches.</p>		
C4.7	<i>Ethics and good behavior</i>	
<p>The panel could not get information on the existence and the functioning of the ethical committee in the institute.</p>		
C4.8	<i>Availability of administrative and auxiliary staff</i>	
<p>The impression of the panel is that the administrative staff is available.</p>		
C4.9	<i>European and International best practices</i>	
<p>The panel could not get information on the implementation of the European and international best practices.</p>		
<p></p>		
<p><i>Summative Comments</i></p>		
<p>a. General feedback</p> <ul style="list-style-type: none"> <li>• Apparently the organization chart seems normal/usual. Within this framework, it seems that the scientific teams do not have enough autonomy and/or responsibility.</li> <li>• There are too many teams (26) and a lack of scientific leaders: few high level researchers (18 CS1 and CS2) and no one qualified as a research project director according to the national</li> </ul>		



requirements.

- Lack of cooperation at management level with other similar EU institutions.
- The panel lacks information on many aspects.

**b. Strengths**

- Administrative procedures are well implemented within the institution.
- Large autonomy given to the branches (for example Iasi Branch).

**c. Weaknesses**

- The management team does not have a clear idea about the difference between the scientific research and normative/regulation works.
- A high level of bureaucracy involved in the management of research grants, most of them to be done by the project leaders and this diverts their time away from dealing with science. The institute should establish an efficient finance management system to remove this burden from scientists.

**d. Specific recommendations**

- Co-opting internationally recognized scientific personalities as special advisers of the management team would be beneficial at short term.
- Scientific criteria and evaluation procedures need to be clearly established and effectively put in practice.
- The management staff should have more autonomy from the supervision Ministry of Regional Development and Tourism (MDRT).
- The management staff should strengthen the role of the scientific leaders of the divisions and simultaneously those scientific leaders should have the responsibility of considerably increasing the scientific production (ISI papers) of the institute.
- The management staff should put in place commissions treating the ethics and the European best practices
- Training the teams in order to improve their professional level and patent – paper – project writing.
- Participate in PhD thesis in international cotutoring.

<b>C<sub>5</sub></b>	<b>Quality and credibility of the institutional development plan</b>	<b>4</b>
<b>C5.1</b>	<b><i>Development direction</i></b>	
<p>The Development Plan is separated for INCERC division and for URBAN division: these plans need to be merged in order to create the required synergy. The observed lack of synergy may be due to the fact that the former two structures seem to work aside, and not together, spoiling the time and competence of the research teams. So far, the managerial team did not succeed in finishing the merging, probably due to the novelty of this situation.</p> <p>The general direction of the development plan respects the past experience of the former two separated institutions (INCERC and URBAN PROJECT). It is affected by the merging of the two institutions and two centers (i.e. 4 organizations) which shakes up the normal life of the former separated institutions. The Development Plan did not propose credible strategies for fully finishing the merging of these 4 organizations in order to optimize their synergy.</p> <p>The difference between the research and normative/regulation work is not clear at the scientific head of the institute (Scientific Council).</p> <p>There is a lack of international PhD thesis in cotutoring and international collaborative research work at any level.</p>		
<b>C5.2</b>	<b><i>Stimulating new ideas and direction in R&amp;D</i></b>	
<p>Ideas seem to emerge from individual/team efforts, not from an institutional framework. The misunderstanding of the difference between research and non-research strongly affects the institutional framework.</p> <p>Iasi Branch has interesting contributions to EU norms and regulations, especially for seismic aspects, which are specific for Romania, but with huge scientific and societal implications.</p> <p>New ideas, both theoretical and experimental, were produced in energy field: ventilated walls, water-filled walls, synergy of high efficiency and renewable sources. These contributions might have an important impact, especially for the severe continental climate of Romania with temperatures varying from -35° to 45°C. Some of the results are being under analysis for patenting (4 in Bucharest and 1 in Iasi).</p> <p>Innovative approaches were demonstrated in acoustics, although the laboratories are getting aged. The transversal cooperation with researchers in material sciences resulted in innovative ways to noise protection (1 patent was obtained) and in consultancy for very special buildings (renovation of Athéné opera hall).</p> <p>Some divisions (Iasi Branch, Energy Performance, and Acoustics) prove to have long term ideas to integrate EU programs. The presence in the institute of an EU FP7 expert in energy performance helps. Especially Iasi Branch has proposals demonstrating clear short and long term ideas.</p>		
<b>C5.3</b>	<b><i>Recruitment policy</i></b>	
<p>We do not have enough information to assess this point. It is necessary to adapt the EU procedures to the local context. More decisional autonomy from the tutelary Ministry (MRDT) would be needed.</p>		

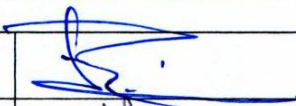

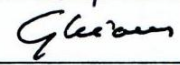

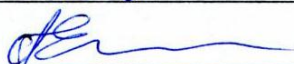
<i>C5.4</i>	<i>Collaborations and partnerships</i>	
<p>A good cooperation is done with the local universities: 6 people are full-time academics working part-time in the institution and 8 people are full-time researchers being associated lectures in universities.</p> <p>There is cooperation with international universities and institutions on ongoing international projects.</p> <p>Iasi Branch has direct and historical industrial partners and strong collaboration with the universities, especially with the local university, and strong collaboration with other research institutions (Petru Poni Institute). It is remarkable their collaboration with international recognized researchers who work for and with them on very specialized aspects. Iasi Branch is also outstanding by its tight cooperation with foreign companies which want to have their products tested for seismic conditions which are specific to Romania. This shows, on one hand, that this foreign companies are very responsible by wanting to put on the Romanian market not only products that comply with the EU regulations, but genuinely adequate products and, on the other hand, the international recognition of Iasi Branch in the field of seismic engineering.</p>		
<i>C5.5</i>	<i>Scientific communication and major projects</i>	
<p>In the recent years, URBAN-INCERC revived an own older journal and created another new journal and a biannual conference. The journals have still a low visibility and not all journal articles are in English. International experts need to be appointed in the editorial board of the journals.</p>		
<i>C5.6</i>	<i>Critical mass in key areas</i>	
<p>The safety / seismic engineering teams of Iasi and Bucharest have contributions to European building codes (EUROCODE), with specificity to earthquakes.</p> <p>Hydrothermal and aerulic properties of materials, buildings and systems (teams in Bucharest and Iasi) have clear programs for adaptive façades (e.g. ventilated walls, water-filled walls) and innovative energy systems (high efficiency systems and renewable energy sources).</p> <p>Urban planning teams have key contributions to the national strategic plan for spatial development, which is a long term vision for developing the territory.</p> <p>Finishing products and polymers team should be developed and improve its work as this team deals with a general European trend of enhancing indoor air quality of building.</p>		
<p><i>Summative Comments</i></p>		
<p><b>a. General feedback</b></p> <ul style="list-style-type: none"> <li>• The plan is coherent with the past expertise and existing infrastructure. There are few (but too few) programs/visions for the future.</li> </ul> <p><b>b. Strengths</b></p> <ul style="list-style-type: none"> <li>• All the topics which are at the heart of the key areas are of strategic importance for the country.</li> <li>• Some teams have good collaboration with universities.</li> <li>• Presence of the main projects in the key areas of activity.</li> </ul> <p><b>c. Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Visibility at international level.</li> </ul>		

**d. Specific recommendations:**

- Clear definition of tasks (what job is important) and look for the qualified person to do it.
- Given the size of the institution, more international cooperation will improve the situation.
- Look for collaborations that increase the visibility.
- Increase the quality of the web-site and make it also in English.
- Considerably increase the number of publications with impact factor and considerable increase the participation in international events (conferences, seminars, workshops, etc).
- The presence of the two journals edited by the institute should not impinge on the publication in other international journals.



**Proposed Certification level: A (mean proposed mark: 3.8 / 5)**



Nr. crt.	Name, Surname	Signature
Evaluation TEAM		
1	Evaluator 1– Angel PALOMO	
2	Evaluator 2 – Jean Yves PETIT	
3	Evaluator 3 – Christian GHIAUS	
4	Evaluator 4 – Eniko VOLCEANOV	
5	Evaluator 5 – Alexandru ENESCA	

Date: *25 June 2022*

Nivelul de certificare din prezentul raport este conform cu nuvelul de certificare propus în procesul verbal al vizitei (Report of the assessment visit – minute).

1	<b>MADR - Anca Ileana GINAVAR</b>	
2	<b>CC CDI - Jenica PACEAGIU</b>	
3	<b>ANCS - Eugen SCARLAT</b>	