

MEXT Project 2011 Leading Program in Doctoral Education

*Phoenix Leader Education Program
(Hiroshima Initiative)
for Renaissance
from Radiation Disaster*

**FY2017
External Evaluation Report**



— Hiroshima University —

Introduction

The Hiroshima University Graduate School Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster (hereinafter, “the Program”) was adopted for the 2011 Program for Leading Graduate Schools by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Since the Program accepted its first students in October 2012, we have conducted self-evaluation of the Program every year. Based on the self-evaluation results, we have also carried out external evaluation, inviting experts both in Japan and abroad to serve as evaluators.

Members of the External Evaluation Committee peruse the Self Study Report, prepared based on 22 points under nine criteria, and the Reference Material for Self Study Report. These members also attend the External Evaluation Committee Meeting held at Hiroshima University to have the opportunity to confirm the actual conditions of the Program activities by talking with the Program faculty members and students. Each member then creates an External Evaluation Report, which comprises four-grade evaluations for the respective criteria and points and the evaluative comments for each criterion. The results of the four-grade evaluations are converted into numerical scores from 1 to 4. As for points that received an average score of 3.5 or less from all the committee members, we have identified the issues in the light of the evaluators’ comments, and have taken improvement measures with particular focus on these issues.

This External Evaluation Report describes the results of the evaluation based on the FY2017 Self Study Report, as well as the issues identified through these results. We hope that you will read this document carefully, along with the aforementioned Self Study Report. This fiscal year, the average rating for all the points and criteria exceeded 3.5, through which we are able to confirm that the Program had mostly achieved its purpose. In their comments, the evaluators highly regarded the Program students’ research results and the track records of their career development. We believe that this favorable evaluation was the outcome of the concerted efforts by the Program faculty members and students, who had worked to foster or become leaders who could take the initiative in recovery activities from radiation disasters, with generous support from partner and other organizations.

On the other hand, this fiscal year, in their free comments, evaluators provided plenty of advice and suggestions for further development of the Program. We therefore voluntarily identified issues based on these comments. Setting these issues as our long-term agenda, we are determined to remain committed to the sustainable development of the Program, as an initiative that deserves global recognition.

March 2018

Kenji Kamiya

**Chairperson of the Evaluation Committee
Program Director of the Phoenix Leader Education Program (Hiroshima Initiative) for
Renaissance from Radiation Disaster, Hiroshima University Graduate Schools**

FY2017 Procedure of the External Evaluation for the Hiroshima University Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster

**December: “Self Study Report” and “Reference Materials for Self Study Report”
to be sent to the External Evaluation Committee Members**



**January: External Evaluation Committee Meeting to be held
at Hiroshima University**



**February: Evaluation Report to be submitted by each member
of the External Evaluation Committee**

**“Phoenix Leader Education Program External Evaluation Report” to be made by March
...move on to the improvement and implementation process**

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Phoenix Leader Education Program for Renaissance from Radiation Disasters FY2017 External Evaluation Committee Meeting Agenda

1. Objective of FY 2017 External Evaluation

The Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster (hereinafter referred to as “the Program”), which was adopted as one of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) FY2011 Leading Programs in Doctoral Education, is a Hiroshima University doctoral program inaugurated in October 2012. Since then, with the Program’s main purpose foremost in our minds we have been working to develop and foster global leaders (Phoenix Leaders), capable of undertaking the best possible actions in a radiation disaster scenario based on extensive interdisciplinary knowledge. The program graduates will be able to provide strong leadership during the disaster recovery process by exercising appropriate judgment and having a clear vision for what is needed.

This is the seventh and final year of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) financial assistance. Hiroshima University will take over the management and funding of the program in its entirety as of April 2018.

The objective of the FY 2017 External Evaluation Committee Meeting is to gather valuable suggestions from the committee members and to identify potential challenges and future prospects for the program as it moves forward and continues develop within its new framework.

2. Date & Venue

- 1) Date: Saturday, January 27th, 2017, 10:00 a.m. – 11:30 a.m.
- 2) Venue: Seminar Room 2, Basic and Sociomedical Research Facility
Kasumi Campus, Hiroshima University



3. Members of External Evaluation Committee FY 2017

Name	Title/Post
Tokushi Shibata	Chief, Oarai Research Center, Chiyoda Technol Corporation
Kiyoshi Miyagawa	Professor, Graduate School of Medicine of the University Tokyo
Tomohide Karita (Document evaluation)	Chairman, Chugoku Economic Federation
Ahmed Meghzifene	Senior medical physics consultant, Division of Human Health, International Atomic Energy Agency (IAEA)
Albert Lee Wiley	Senior Physician and Scientific Advisor of REAC/TS, and Head of the World Health Organization (REMPAN) Collaborating Center at Oak Ridge
Thierry Schneider	Director, Centre d'étude sur l'évaluation de la protection dans le domaine nucléaire (CEPN)
Tom K.Hei	Professor and Vice-chair of Radiation Oncology at Columbia University

4. Members of Phoenix Leader Education Program

Post	Name	Affiliation	Responsibility in Program
Vice President	Kenji Kamiya	Reconstruction Support/Radiation Medicine, Medical Policy Office	Program Director Chairperson, the Evaluation Committee, the Degree Examination Committee, the Career Paths Committee
Professor	Masao Kobayashi	Graduate School of Biomedical & Health Sciences	Program Coordinator
Professor	Shinya Matsuura	Research Institute for Radiation Biology and Medicine	Radiation Disaster Medicine Course Leader Chairperson, the Education Committee
Professor	Satoru Nakashima	Natural Science Center for Basic Research and Development	Radioactivity Environmental Protection Course Leader Chairperson, the Hiroshima Phoenix Training Center Acting Committee
Professor	Yukio Urabe	Graduate School of Biomedical & Health Sciences	Radioactivity Social Recovery Course Leader Chairperson, the Fieldwork Implementation Committee
Professor	Hiroshi Yasuda	Research Institute for Radiation Biology and Medicine	Chairperson, the Entrance Examination Committee
Professor (Special Appointment)	Hironori Deguchi	Graduate School of Science	Chairperson, the Student Life Committee
Professor	Toshinori Okuda	Graduate School of Integrated Arts and Sciences	Chairperson, the International Exchange Committee
Professor	Chisa Shukunami	Institute of Biomedical & Health Sciences	Chairperson, the Information Promotion Committee
Student	Chryzel Angelica Bataan Gonzales	Graduate School of Biomedical & Health Sciences Biomedical Science Major	Radiation disaster Medicine Course
Student	Basuki Triyono	Graduate School of Science Chemistry Major	Radioactivity Environmental Protection Course
Student	Yuji Hirano	Graduate School of Letters Humanities Major	Radioactivity Social Recovery Course

5. Agenda

Time	Event	Person
10:00	Opening Remarks	Program Director
10:05	Guidance on Evaluation Process	Program Director
10:10	Explanation and evaluation of program areas in need of improvement identified following the FY2016 External Evaluation	Program Coordinator
10:40	Break	
10:50	Discussion	All Participants
11:20	Discussion and Sum up of the morning's activities	Program Director
11:30	Closing Remarks	Program Coordinator

II . Evaluation by criteria

* The evaluation scores are calculated based on selection by each committee member with assignment of points as follows: 4 points for “satisfied,” 3 points for “mostly satisfied,” 2 points for “requires partial improvement,” and 1 point for “requires major improvement.”

* Final evaluation is indicated by placing a check mark in the box next to the appropriate evaluation, with an average score of 1 to less than 1.5 being “requires major improvement,” 1.5 to less than 2.5 being “requires partial improvement,” 2.5 to less than 3.5 being “ mostly satisfied,” and 3.5 and higher being “satisfied.”

Criterion 1: Purpose of the Program

Point 1 Does the purpose of the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster (hereafter “the Program”) comply with the purpose of the Leading Program in Doctoral Education, sponsored by the Ministry of Education, Culture, Sports, Science and Technology (MEXT): fostering leaders who have a broad perspective and creativity and who will be active in global academic, industrial, and governmental arenas?

[Evaluation Result]

- ☒ Criterion 1 is satisfied
- ☐ Criterion 1 is mostly satisfied
- ☐ Criterion 1 requires partial improvement
- ☐ Criterion 1 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

[Comments]

Member D:

The graduates produced by the Program are all playing an active role not only in their own area of competence, but also in fostering the transdisciplinary approach to problem solving.

Member F:

- Quality of the students’ presentation during the international symposium
- Effective job opportunities for students after their PhD

Member G:

The Phoenix Leader Education Program is, as in the past many years, on target with its educational and training missions.

Criterion 2: Implementation Structure

Point ① Does the Program have guidance and student-support systems appropriate for achieving its purpose?

[Evaluation Result]

- ☒ Point ① is satisfied
- ☐ Point ① is mostly satisfied
- ☐ Point ① requires partial improvement
- ☐ Point ① requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	3	4	3.86

Point ② Does the Program have planning, operating, and partnership-building systems appropriate for achieving its purpose?

[Evaluation Result]

- ☒ Point ② is satisfied
- ☐ Point ② is mostly satisfied
- ☐ Point ② requires partial improvement
- ☐ Point ② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	3	4	3	4	3	4	3.57

Overall evaluation

[Evaluation Result]

- ☒ Criterion 2 is satisfied
- ☐ Criterion 2 is mostly satisfied
- ☐ Criterion 2 requires partial improvement
- ☐ Criterion 2 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	3	4	3	3	3.57

[Comments]

Member A:

I highly commend the fact that the Program graduates have cultivated their career paths and that they have successfully acquired licenses, certifications, etc. that are useful in developing their career paths.

Member B:

In view of supporting students in developing their careers after graduation, the Program should aim to establish a more diverse cooperation system to help foster global leaders in fields related to radiation disaster recovery.

Member D:

Comment on Issue 1: To improve the international recognition of the value of an academic degree from this program

- The activities given in the self-study report highlight the international cooperation, but not necessarily international recognition of the academic Program. Specific actions should now be derived from the international cooperation framework which was established with the IAEA, ICRP, EC, CEPN and academia to establish the recognition of the value of the academic degree from this program.

Comment on Issue 3: To encourage the acquisition of licenses, certifications, etc., that are issued and recognized by public organizations both inside and outside of the country. These qualifications would be of help to students in selecting a career path after their graduation.

- The self-study report gives detailed activities which aim at encouraging the acquisition of professional recognition such as licenses, certifications, etc. These efforts should be commended. However, these efforts can be further strengthened by integrating them into a

more formal career pathway and offering advice and mentorship to students for achieving the license/certification goal. For example, for medical physics students, the Program could offer support for either national (when a national certification system exists) or international (through the international medical physics certification board).

Comment on Issue 4: A contingency plan should be in place in case the funding for the new program is not immediately approved.

- The self-study presents options for continuation in case the funding for the new program is not immediately approved, but the impact of these options has not been fully analyzed.

Member E:

Hopefully the past student support for tuition and living expenses can be continues in spite of current budget constraints.

Member F:

- Key challenge on the sustainability of the programme essentially regarding the financial support
- Need to reinforce the link with international organisations and foreign countries to ensure the sustainability and dissemination

Member G:

- As mentioned in the overall evaluation, “brand’ recognition, which is part of the international recognition of the value of a degree from the Phoenix Education program can be further expanded.
- The recruitment of health care professionals into the Phoenix Education Program in order to train physicians and dentists to take charge at a nuclear event is well conceived and warranted.
- A financial plan to continue the Phoenix Leader Education Program is in place comes April 2018 when the MEXT support finishes.

Criterion 3: Program Members and Education Supporters

Point ① Does the Program have a clear policy to build an organization of faculty members? Does it clarify the responsibilities of respective members for education and research activities?

[Evaluation Result]

- ☒ Point ① is satisfied
- ☐ Point ① is mostly satisfied
- ☐ Point ① requires partial improvement
- ☐ Point ① requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	3	4	3.86

Point ② Does the Program have faculty members capable of achieving the purpose of the Program: to foster Phoenix Leaders, who will conduct interdisciplinary and integrated management of recovery programs in regions suffering from complex damage caused by radiation disasters?

[Evaluation Result]

- ☒ Point ② is satisfied
- ☐ Point ② is mostly satisfied
- ☐ Point ② requires partial improvement
- ☐ Point ② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Overall evaluation

[Evaluation Result]

- ☒ Criterion 3 is satisfied
- ☐ Criterion 3 is mostly satisfied
- ☐ Criterion 3 requires partial improvement
- ☐ Criterion 3 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

[Comments]

Member A:

The Program should be highly regarded for taking various measures to deepen exchanges between students and experts.

Member D:

(Comment on Point ②)

The Self-study report gives a list of only 2 external experts, The Program managers should consider the possibility to establish a list of international experts to support the Program with webinars and dedicated lectures on specific topics.

Member F:

It would be useful to further develop the cooperation between the professors on the development of the transdisciplinary approach on recovery issues

Criterion 4: Status of Accepting Students

Point ① Does the Program have a definite policy and criteria for admitting students? Does the University publicize those criteria?

[Evaluation Result]

- ☒ Point ① is satisfied
- ☐ Point ① is mostly satisfied
- ☐ Point ① requires partial improvement
- ☐ Point ① requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	

Point ② Does the Program employ an appropriate system to select students according to its admission policy? Does the system function well?

[Evaluation Result]

- ☒ Point ② is satisfied
- ☐ Point ② is mostly satisfied
- ☐ Point ② requires partial improvement
- ☐ Point ② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Point ③ Does the Program have a system to verify that screening methods comply with the admissions policy? Are verification results reflected in improving the screening methods?

[Evaluation Result]

- ☒ Point ③ is satisfied
- ☐ Point ③ is mostly satisfied
- ☐ Point ③ requires partial improvement
- ☐ Point ③ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	3	4	4	4	3.86

Overall evaluation

[Evaluation Result]

- ☒ Criterion 4 is satisfied
- ☐ Criterion 4 is mostly satisfied
- ☐ Criterion 4 requires partial improvement
- ☐ Criterion 4 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	3	4	4	4	3.86

[Comments]

Member B:

As a whole, the Program has constantly accepted a certain number of students each fiscal year, although there have been some variations according to the year. This fact is highly commendable in comparison with other postgraduate programs geared to specific disciplines.

Member D:

(Comment on Point ③)

The self-study report mentions briefly (page 16) that the entrance examination is also responsible for verifying that acceptance procedures are appropriately implemented and for suggesting improvements. However, neither the self-study report nor the reference [37, 38] indicate how this review of procedures is conducted.

Member G:

- The Phoenix Education program has well qualified faculty members recruited from within and outside of Hiroshima University.
- Clearly defined evaluation criteria are in place for admission policy.

Criterion 5: Contents and Means of Education

Point ① Does the Program have systematic curriculums appropriate to fulfill its goal and suitable for granting academic degrees? Are subjects to be taught well arranged in line with the purpose of the Program?

[Evaluation Result]

- ☒ Point ① is satisfied
- ☐ Point ① is mostly satisfied
- ☐ Point ① requires partial improvement
- ☐ Point ① requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Point ② Does the Program have means to guide students of diverse backgrounds to the goal of obtaining degrees? Does the Program have means to allow students to confirm their achievement levels?

[Evaluation Result]

- ☒ Point ② is satisfied
- ☐ Point ② is mostly satisfied
- ☐ Point ② requires partial improvement
- ☐ Point ② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	3	4	3.86

Point ③ Does the Program have advanced educational functions sufficient to offer high-level practical curriculums?

[Evaluation Result]

- ☒ Point ③ is satisfied
- ☐ Point ③ is mostly satisfied
- ☐ Point ③ requires partial improvement
- ☐ Point ③ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Point ④ Does the Program have a mechanism to develop students' communication and negotiation abilities so as to foster active leaders who will address global challenges?

[Evaluation Result]

- ☒ Point ④ is satisfied
- ☐ Point ④ is mostly satisfied
- ☐ Point ④ requires partial improvement
- ☐ Point ④ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	3	3	4	4	3.71

Point ⑤ Are appropriate syllabuses being prepared and utilized in line with the purpose of the curriculum's organization?

[Evaluation Result]

- ☒ Point ⑤ is satisfied
- ☐ Point ⑤ is mostly satisfied
- ☐ Point ⑤ requires partial improvement
- ☐ Point ⑤ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	3	4	4	3.86

Point ⑥ Is consideration systematically given to students undertaking independent study as well as students taking subjects related to fields outside their field of specialization?

[Evaluation Result]

- ☒ Point ⑥ is satisfied
- ☐ Point ⑥ is mostly satisfied
- ☐ Point ⑥ requires partial improvement
- ☐ Point ⑥ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	3	4	4	4	3.86

Point ⑦ When conducting classes for mature-aged students etc., in remote locations, have implementation methods been prepared for teaching lessons using printed materials, etc. (including correcting students' work, etc.), broadcast lessons, interview lessons (including screenings, etc.), or lessons using media, and are appropriate guidance and supervision provided?

[Evaluation Result]

- ☒ Point ⑦ is satisfied
- ☐ Point ⑦ is mostly satisfied
- ☐ Point ⑦ requires partial improvement
- ☐ Point ⑦ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Overall evaluation

[Evaluation Result]

- ☒ Criterion 5 is satisfied
- ☐ Criterion 5 is mostly satisfied
- ☐ Criterion 5 requires partial improvement
- ☐ Criterion 5 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	3	4	4	3.86

[Comments]

Member A:

I highly regard the fact that a student working at a company and living in Tokyo successfully completed the Program and earned his PhD, since this is an indication that classes and guidance were appropriately provided for students with a full-time job in remote locations.

Member B:

If the Program's contents are excessively defined, it may impair the autonomy of the students. I therefore think the current contents of the Program are sufficient for the time being.

Member D:

The information given in the Self-study report indicate that the Program is very much student-centered and provides all the required support for an effective implementation of the curriculum. I have a comment on point “④- Does the Program have a mechanism to develop students' communication and negotiation abilities so as to foster active leaders who will address global challenges?” the information given in the Self-study report is very much focused on the English language and does not highlight how the Program fosters communication skills. A good command of English does not necessarily imply good communication skills.

Member F:

- Significant increase of field work
- Usefulness of internships
- Excellent international symposium with students' participation
- Ethical issues to be further considered in the programme

Member G:

- Through my many interactions with the Phoenix Leader Education program students in the past, I believe that they have excellent communication training through the program and they are effective communicators.
- Student's participation at international conference serves multiple purposes. They broaden the student's horizon of what is being done outside of their usual domain; the meeting provides a forum for professional networking outside Japan. This network is critical in their career development in the future. Finally, the student's presentations at international conferences serve to advertise the Phoenix program to outsiders. As such, in the opinion of this reviewer, students should be encouraged to participate at international meetings of their respective field.

Criterion 6: Outcomes of Education

Point ① Does the Program have an appropriate system to evaluate students' achievement levels in terms of their academic performances and credentials, as well as their progress towards the goal of developing abilities required for Phoenix Leaders?

[Evaluation Result]

- ☒ Point ① is satisfied
- ☐ Point ① is mostly satisfied
- ☐ Point ① requires partial improvement
- ☐ Point ① requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Point ② Judging by the results of questionnaires and other hearings of students' opinions, are educational results and/or effectiveness improving?

[Evaluation Result]

- ☒ Point ② is satisfied
- ☐ Point ② is mostly satisfied
- ☐ Point ② requires partial improvement
- ☐ Point ② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Overall evaluation

[Evaluation Result]

- ☒ Criterion 6 is satisfied
- ☐ Criterion 6 is mostly satisfied
- ☐ Criterion 6 requires partial improvement
- ☐ Criterion 6 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

[Comments]

Member D:

The quality of talks given by the Students at international events is very good. This is a good indicator about the overall outcome of the Program.

Member F:

Good and fruitful debate among the students during the international symposium

Criterion 7: Student Support Systems

Point ① Does the Program offer an ideal environment where excellent students can inspire and compete with each other?

[Evaluation Result]

- ☒ Point ① is satisfied
- ☐ Point ① is mostly satisfied
- ☐ Point ① requires partial improvement
- ☐ Point ① requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

Point ② Does the Program offer financial support to students to enable them to concentrate their efforts and time on studies and research activities?

[Evaluation Result]

- ☒ Point ② is satisfied
- ☐ Point ② is mostly satisfied
- ☐ Point ② requires partial improvement
- ☐ Point ② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	3	4	4	3.86

Point ③	Does the Program support students in preparing and carrying out their autonomous and original research plans?
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[Evaluation Result]

- ☒ Point ③ is satisfied
- ☐ Point ③ is mostly satisfied
- ☐ Point ③ requires partial improvement
- ☐ Point ③ requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	3	4	4	4	4	4	3.86

Overall evaluation

[Evaluation Result]

- ☒ Criterion 7 is satisfied
- ☐ Criterion 7 is mostly satisfied
- ☐ Criterion 7 requires partial improvement
- ☐ Criterion 7 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	3	4	4	3.86

[Comments]

Member A:

It is highly commendable that the Program has introduced a measure that enables excellent students to continue to study in the Program beyond the final year in which the Program can receive financial support from MEXT.

Member B:

I recognize that the Program has achieved positive outcomes with regard to supporting students in carrying out their autonomous research plans. However, in terms of originality of their research, the Program needs further improvement.

Member D:

Clearly the financial support provided to the students up to now has been outstanding. This situation will change when the support from MEXT will end this year. However, the Program managers are setting-up a sustainable process to ensure continuity of the Program. The Self-study report mentions that the “new support” system will be mainly addressed to excellent students. The Program managers might envisage defining clearly what “excellent” means for the current students. This will enable them to clearly understand how they fit into this excellency criteria and make plans for their future studies/careers.

Member F:

Once again, very good system up to know, but question about the sustainability depending on the future financial support

Member G:

As the Phoenix Leader Education program switches over to the Hiroshima University for financial support after March 2018 as the MEXT grant finishes, there are some students who express worry about losing their stipends. As such, students should be informed of the upcoming change early on so they can make adjustment plan accordingly, if not already done so.

Criterion 8: Facilities and Equipment

Point 8 Does the University have facilities and equipment sufficient for educational and research activities of the Program, and suitable for providing the curriculums?

[Evaluation Result]

- ☒ Criterion 8 is satisfied
- ☐ Criterion 8 is mostly satisfied
- ☐ Criterion 8 requires partial improvement
- ☐ Criterion 8 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	3	4	4	4	4	4	4	3.86

[Comments]

Member A:

I recommend that the Self Study Report include an introduction to the Hiroshima Phoenix Training Center.

Member D:

Excellent facilities

Criterion 9: System for Quality Enhancement and Improvement of Education

Point 9 Does the Program have an appropriate system to evaluate its implementation processes?

[Evaluation Result]

- ☒ Criterion 9 is satisfied
- ☐ Criterion 9 is mostly satisfied
- ☐ Criterion 9 requires partial improvement
- ☐ Criterion 9 requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	4	4	4.00

[Comments]

Member D:

The Program has a good review system that includes internal and external evaluations, in addition to continuous dialogues with the students.

III. Overview

This section presents evaluators' comments regarding the overview of the Program, when the Program was evaluated from cross-sectional and comprehensive perspectives, rather than in terms of specific points or criteria. The following is a list of free comments made by each Committee member. These comments are classified into three categories: 1. Notably exceptional aspects; 2. Aspects requiring improvement; and 3. Other aspects for which future improvement is desirable.

1. Notably exceptional aspects are as follows.

<p>Member A:</p> <ul style="list-style-type: none">● I highly regard the fact that the Program members extracted issues that had scored an average rating below 3.5 out of 4 in the external evaluation and attempted to improve the Program's activities related to these issues, and also that they voluntarily extracted issues regarding Criterion 5, which received a lot of advice and suggestions from External Evaluation Committee members.● It can also be highly regarded that, thus far, Program members have made annual improvements to address issues that had been pointed out by External Evaluation Committee members in the previous year, so as to continuously improve and enhance the Program.
<p>Member B:</p> <p>The contents of the Phoenix Leader Education Program are unique and exceptional as a postgraduate education initiative in the crosscut composite research domain. Accordingly, the Program has produced excellent graduates. I highly regard the Program as a new graduate school program.</p>
<p>Member C:</p> <p>The Program has a distinctive character and integrates diverse academic disciplines. Centering on their field of specialty, individual students can obtain knowledge not only in the fields of science, engineering and medical science, but also extensive knowledge of political, economic and other affairs relating to the international community. Moreover, the Program is designed to help students acquire the skills necessary to work in an actual disaster setting. Therefore its contents are considered appropriate as an education program aimed at fostering human resources who can contribute to disaster recovery. In addition, the Program offers its students financial support, well-equipped facilities and a favorable learning environment, including opportunities for practical internships that will lead to students' career development. The Program is making steady progress in fostering individuals with global competency and strong leadership.</p>
<p>Member D:</p> <ul style="list-style-type: none">● The Phoenix Leader Education Programme (PLEP) is unique and is beneficial not only to Japan, but to the rest of the world as well. Nuclear disasters know no border; humankind will

benefit from well-trained scientists to lead recovery efforts, beyond the boundaries of disciplines and physical borders of countries.

- The graduates produced by the Program are all playing an active role not only in their own area of competence, but also in fostering the transdisciplinary approach to problem solving.
- The PLEP includes a very well-structured and transparent review process-internal and external- to assess its achievements, following well-identified criteria. Over the past few years, this evaluation process was used by the PLEP managers to identify gaps and design and implement solutions for quality improvement.
- The expiration of the seven-year support period by MEXT to the PLEP will clearly introduce some challenges. The Program team has anticipated this step and has started taking action to ensure continuation of the Program in a sustainable manner. The University of Hiroshima seems to be committed to support the Program, but additional funding sources are needed to ensure its long-term sustainability. The Program team has already begun exploring non-conventional funding sources such as private-public partnership. Suggestions are given under item 3 below, aiming at strengthening the efforts of seeking non-conventional funding for the Program.

Member E:

The Phoenix PhD program is unusual and exceptional in a number of ways:

- a) It is the only PhD program which focuses on the overall assessment and management of radiation disasters.
- b) Very unfortunately the Fukushima disaster and the proximity of Hiroshima to Fukushima gives the students the very unusual opportunity to study all aspects of a major radiation disaster, so that their experience and knowledge base uniquely prepares them to make better decisions if they in the future ever face another such disaster.
- c) The curriculum also is truly unique and fosters a multidisciplinary and comprehensive understanding of the disaster, including the medical, social, agricultural and environmental aspects, which also help them to make optimal decisions in various phases of the disaster.

Member F:

- Development of field works in partnership with local residents and NPOs: quite exceptional for students
- Promotion of the transdisciplinary approach which starts to be effective for the students
- Exchange with foreign students during the international symposium with quite valuable debates and complementarity in the approaches
- Job opportunities according to the recruitment of students after their PhD

Member G:

- The Phoenix Leader Education Program has continued to achieving its goal in nurturing the next generation of radiation disaster management leaders by fostering global scholars who are well trained and who can properly address radiation disaster by playing a leadership role in recovery efforts with vision and with a global network of support.
- The management team of the Phoenix Leader Education program has continued to be

exceedingly responsive to the concerns/ suggestions made by the members of the External Evaluation Committee.

- Well defined corrective approaches are introduced to augment existing programs in response to reviewers' comment.
- The Phoenix Leader Education program continues to perform well and the 8 recent graduates of the program have entered into the dedicated career field and is an endorsement of excellent training outcome of the program.
- As the financial support of the Program by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) discontinued in March 2018, a financial supporting structure by Hiroshima University has been set up to ensure the continuation of the program.

2. Aspects requiring improvement are as follows.

Member A:

- Let me describe what I feel about the Program, although these may not be aspects requiring improvement.

Activities for recovery from the Fukushima nuclear accident are gradually progressing, and the number of evacuees returning to their hometowns is expected to increase little by little. Under these conditions, as far as Fukushima is concerned, the need for nurturing leaders who support disaster recovery efforts will gradually diminish. I therefore fear that if this trend continues, it may become difficult to obtain public understanding for the continuance of this Program. On the other hand, a nuclear power plant accident whose impact would reach beyond the plant premises could probably reoccur in the future. In that case, the need to bring together many skilled supporters from many countries will not disappear. To handle such a situation, it is necessary to foster leaders who support disaster recovery efforts around the world, to maintain a network of these leaders, and to sustain a system for dispatching these leaders to disaster sites as needed.

I don't think all the people who have received training in the Phoenix Leader Education Program will find employment in workplaces related to disaster recovery. However, I believe it is meaningful to create a system that allows the Program graduates to participate as network members in international workshops to obtain new information, and to play active roles at disaster sites if so required. In other words, I hope that the Phoenix Leader Education Program will grow to be internationally recognized as a program that fosters individuals with useful skills for supporting recovery efforts from a great disaster, and as a program that sustains the system for dispatching these supporters whenever a great disaster occurs, not only in Japan but also to countries around the world.

Member B:

Social needs regarding radiation disaster recovery can vary considerably depending on the time and place. As such, the Program should advise its students from a broader viewpoint to support them in developing their future careers.

Member C:

This Program is designed to help students analyze and investigate the impact of radiation disasters on the international community and the human body from various angles, and acquire knowledge, skills and leadership, all of which are necessary for disaster recovery activities. Radiation-related knowledge and utilization technology are indispensable in the fields of the environment, energy, medical care and industrial application. Through this Program, students can learn how large an impact is brought about by radiation disasters and how difficult it is to recover from such disasters. I therefore expect that the Program will play a role in sending out its graduates to society as human resources who can exercise leadership in improving social infrastructure and other systems that will prevent radiation disasters.

Member D:

Considerable efforts have been made to achieve international recognition of the Program by leading international organizations, universities and specialized institutes. The results achieved so

far are very encouraging; and improved access of these organizations to the students. Further efforts are needed to ensure formal recognition (in the form of endorsement or formal collaboration) of this Program to the global efforts for renaissance from radiation disaster.

Member E:

There are only a few more areas which might be useful if included in the curriculum, such as implementing a few courses on law and economics, which might include the basics of local and international law and insurance law, since many disasters have effects which cross international boundaries, such as effects on the global environmental and trade (including the movement of medical and drug supplies and tissue/blood specimens across international boundaries).

Member F:

- Further development of the link with international organisations and with foreign countries for promoting education and training in the field of transdisciplinary approach for recovery issues
- Improve the coordination of professors involved in the programme to promote the transdisciplinary approach on recovery
- Ensure the sustainability of the programme based on the different scenarios envisaged

Member G:

- Name recognition of the training program or the “brand” can be further expanded as this is truly a unique training program that does not exist anywhere in the world. While association with international commissions and agencies can raise the profile of the program, the grass-root radiation community knows little of this Phoenix program. The American Radiation Research Society and the European Association of Radiation Research both have scholar-in-training programs that can be partnered and raised the brand recognition of the Phoenix program among its base.
- Some of the current trainees appear to be “surprised” by the change in tuition support as the financial plan of the Phoenix program changes from MEXT to Hiroshima University after March 2018. As such, greater transparency should be considered in the future when dealing with student support.

3. Other aspects for which future improvement is desirable are as follows.

Member B:

The Program has practiced interdisciplinary education. It is hoped that this educational practice will inspire discussions on what will be a novel proposal in formulating educational programs for the next generation.

Member C:

The Program has taken substantial measures to heighten international recognition of the value of academic degrees granted by the Program, and has established a system to continuously support its graduates. Therefore I think that future continuity is all the more essential to enhance the Program's international credibility. I expect that the Program will make further efforts toward its autonomous operation.

Member D:

Suggestions for private-public partnership to ensure the sustainability of the Program:

- Explore with the industry the possibility to identify the training needs for their leadership staff in the areas included in the PLEP. For example, nuclear industry (in Japan and outside Japan) might be interested in training some of their staff in specific areas offered in the PLEP. This training can take the form of sponsored PhD studies for their staff or for newly recruited staff. Alternatively, some of their staff may benefit from attending specific lectures/courses as observers only. In addition, the industry may also be approached to suggest (and fund) research and development topics that can be investigated within the PLEP PhD work.
- Explore with other universities (in Japan and outside Japan) the possibility of a dual diploma (MSc, PhDs) in conjunction with the PLEP. This collaboration will open the door for many joint research and development topics and enhance international recognition of the PLEP.

Member F:

- It could be of interest to further develop the programme on ethical issues regarding research in the field of recovery including the position of the experts to be involved
- Promote the link between research and development and implementation of the policy framework on recovery

IV. Summary sheet of evaluation points

The results of the four-grade scale evaluations made by External Evaluation Committee members (under anonymous names, members A–G) were converted into numerical scores from 1 to 4. As a result, this fiscal year’s average score of all the criteria stood at 3.89, slightly improved from the figure of 3.88 in the preceding fiscal year. The following table shows the scores for the respective criteria and points, alongside the average scores. As compared with the previous year, when there is a difference, the average score is marked with “↑” (to indicate an increase) or “↓” (to indicate a decrease). The figures within parentheses are the scores of the previous year.

Member		A	B	C	D	E	F	G	Average
Criterion 1		4	4	4	4	4	4	4	4.00
Criterion 2	Point ①	4	4	4	4	4	3	4	3.86 ↑ (3.43)
	Point ②	4	3	4	3	4	3	4	3.57 ↓ (3.86)
	Overall evaluation	4	4	4	3	4	3	3	3.57
Criterion 3	Point ①	4	4	4	4	4	3	4	3.86
	Point ②	4	4	4	4	4	4	4	4.00 ↑ (3.71)
	Overall evaluation	4	4	4	4	4	4	4	4.00
Criterion 4	Point ①	4	4	4	4	4	4	4	4.00 ↑ (3.71)
	Point ②	4	4	4	4	4	4	4	4.00 ↑ (3.86)
	Point ③	4	4	4	3	4	4	4	3.86
	Overall evaluation	4	4	4	3	4	4	4	3.86
Criterion 5	Point ①	4	4	4	4	4	4	4	4.00
	Point ②	4	4	4	4	4	3	4	3.86
	Point ③	4	4	4	4	4	4	4	4.00
	Point ④	4	4	4	3	3	4	4	3.71 ↓ (3.86)
	Point ⑤	4	4	4	4	3	4	4	3.86 ↓ (4.00)
	Point ⑥	4	4	4	3	4	4	4	3.86
	Point ⑦	4	4	4	4	4	4	4	4.00
	Overall evaluation	4	4	4	4	3	4	4	3.86 ↑ (3.71)
Criterion 6	Point ①	4	4	4	4	4	4	4	4.00
	Point ②	4	4	4	4	4	4	4	4.00
	Overall evaluation	4	4	4	4	4	4	4	4.00
Criterion 7	Point ①	4	4	4	4	4	4	4	4.00
	Point ②	4	4	4	4	3	4	4	3.86 ↓ (4.00)
	Point ③	4	3	4	4	4	4	4	3.86 ↑ (3.71)
	Overall evaluation	4	4	4	4	3	4	4	3.86
Criterion 8		3	4	4	4	4	4	4	3.86 ↓ (4.00)
Criterion 9		4	4	4	4	4	4	4	4.00
Average		3.96	3.93	4.00	3.79	3.82	3.82	3.96	3.89 ↑ (3.88)

V. Issues pointed out by the External Evaluation Committee: as the mid- and long- term agenda

Every year, we have evaluated and improved the Program activities according to 22 points under nine criteria. In this process, we have identified the issues to be addressed based on the results of the four-grade scale evaluation and evaluative comments made by members of the External Evaluation Committee, so as to take improvement measures next fiscal year. Specifically, the results of the four-grade scale evaluations for each criterion and point are converted into numerical scores from 1 to 4. For the points and criteria receiving an average score of 3.5 or less from all the External Evaluation Committee members, we have extracted the issues pointed out in the evaluators' comments on these points and criteria, and then taken improvement measures to resolve these issues. In this way, we have reliably responded to the findings or issues pointed out through the annual external evaluation. This approach has proved very effective for the Program in achieving its purpose. In fact, each year, the External Evaluation Committee members have highly evaluated the fact that the Program has surely made improvements to address the issues they had pointed out, and that such efforts have resulted in the development of the Program that cannot be seen elsewhere.

This fiscal year, the average score from all the Committee members stood at 3.89 out of 4, a slight increase from 3.88 in the previous fiscal year. By item, all the average scores exceeded 3.5. This means that we had no criteria or points for which issues should be defined. However, while giving a high evaluation, our evaluators provided us with plenty of advice and suggestions in anticipation of the Program's further development. We therefore decided to extract issues from their advice and suggestions, and defined them as our mid- and long-term agenda. These issues were not extracted from all the evaluative comments, but from the comments that each member gave to those criteria and points whose evaluations had dropped, even if slightly, compared with the previous year. The issues we identified are as follows:

1. Issues Related to Criterion 2: Implementation Structure

【Evaluation Results】

Under Criterion 2, this year's evaluation score for Point ① was 3.86, which is the same as in the previous year, and that for Point ② was 3.57, up from the evaluation average score of 3.43 in the previous year. Meanwhile, the average score of the overall evaluation decreased to 3.57 from 3.86 a year earlier. The evaluative comments for Criterion 2 include Committee members' opinions on the cooperation system to facilitate students' career development, and on measures to be taken after the end of the financial support from MEXT.

【Issues】

- ① Establish a more diverse cooperation system, in view of supporting students in developing their careers after graduation
- ② Reinforce the link with international organizations and foreign countries to ensure sustainability and dissemination

- ③ Support students in acquiring licenses, certifications, etc. that are in agreement with their career path development
- ④ Fully analyze the effects of measures to ensure the continuation of the Program
- ⑤ Continue the support systems that have conventionally been provided to students

2. Issues Related to Criterion 5: Contents and Means of Education

【Evaluation Results】

Point ④ of Criteria 5 states “Does the Program have a mechanism to develop students’ communication and negotiation abilities so as to foster active leaders who will address global challenges?” This year, this point earned an average evaluation score of 3.71, down from 3.86 in the previous year. The average score for Point ⑤ “Are appropriate syllabuses being prepared and utilized in line with the purpose of the curriculum’s organization?” also decreased to 3.86 from 4.0 in the previous year. However, the average score of the overall evaluation increased from 3.71 to 3.86 this year. In the evaluative comments, a member mentioned that the current contents of the Program were sufficient for the time being, and that if the Program’s contents were excessively defined, it might impair the autonomy of the students. On the other hand, other members pointed out a few problems.

【Issues】

- ① Clarify the curriculums other than that for English education to develop students’ international communication skills
- ② Introduce discussions on ethical issues into the curriculum
- ③ Encourage students to participate in international academic conferences

3. Issues Related to Criterion 7: Student Support Systems

【Evaluation Results】

Under Criterion 7, this year’s average score for Point ② “Does the Program offer financial support to students to enable them to concentrate their efforts on studies and research activities?” decreased to 3.86 from 4.00 in the previous year, with the average score of the overall evaluation also dropping to 3.86 this year from 4.0 a year earlier. In their comments, the evaluators submitted their opinions primarily regarding support for students in conducting their research.

【Issues】

- ① Further improve the Program to support students in preparing and carrying out their original research plans

- ② Clearly define what “excellent” means for students, when financial support is provided to excellent students in the future, so as to enable them to clearly understand how they fit into this excellency criteria and make plans for their future studies/careers
- ③ Inform students of the upcoming change in financial support early on, so they can make adjustment plans accordingly

4. Issues Related to Criterion 8: Facilities and Equipment

【Evaluation Results】

Criterion 8 comprises only a single point, which states “Does the University have facilities and equipment for educational and research activities of the Program and suitable for providing the curriculums?” This year, its average rating decreased to 3.86 from 4.00 in the preceding year. In the evaluative comments, only one suggestion was advanced.

【Issues】

- ① Include an introduction to the Hiroshima Phoenix Training Center in the Self Study Report

5. Issues Related to the Findings in the Overview Evaluation

【Evaluation Results】

Here are the issues identified based on the “aspects requiring improvement” cited by the External Evaluation Committee members in the overview evaluation.

【Issues】

- ① Foster leaders who support disaster recovery efforts around the world, maintain a network of such leaders, and sustain a system for dispatching these leaders to disaster sites as needed
- ② Provide support for students’ career development from a broader viewpoint, in light of the social needs regarding radiation disaster recovery
- ③ Send out Program graduates to society as human resources who can exercise leadership in improving social infrastructure and other systems that will prevent radiation disasters
- ④ Add to the curriculum a few courses on law and economics, which might include the basics of local and international law and insurance law, as well as effects of disasters on the global environment and trade
- ⑤ Further develop links with international organizations and foreign countries to promote education and training in the field of transdisciplinary approach to recovery issues
- ⑥ Raise the name recognition of the Program in the grass-roots radiation community
- ⑦ Partner with scholar-in-training programs of the American Radiation Research Society and the European Association of Radiation Research
- ⑧ Consider greater transparency in the future when dealing with student support

Conclusion

Thus far, the Program has undergone external evaluations six times, which were made by members of the External Evaluation Committee, all of whom are experts working in the forefront of such fields as radiation science and radiation protection. The external evaluation has functioned as a mariner's compass for the Program. Based on the results of the external evaluation, we have taken many improvement measures, which have enabled the Program to achieve its purpose in a reliable manner. In the FY 2017 external evaluation, the Program's level of completion was highly regarded by the Committee members, who also provided us with many useful suggestions indicating the pathway that the Program should follow in the future.

In March 2018, when the period for financial aid from the Ministry of Education, Culture, Sports, Science and Technology expires, the Program will embark on new challenges. Based on this report, we will further strengthen cooperation with our partner organizations outside Hiroshima University, while sharing a common vision among the faculty and students. Going forward, we will also strive to make many reforms that will lead to the fulfillment of the mission of the Program, which is aimed at resolving global challenges, and to successful research and career outcomes for all students.

I would like to ask all the parties concerned for their continued cooperation in this endeavor.

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