

2011 Program for Leading Graduate Schools by MEXT

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

FY2016

Self Study Report
External Evaluation Report



– Hiroshima University –

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I . FY2016 Self Study Report

Introduction

Since its adoption for the 2011 Program for Leading Graduate Schools by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Hiroshima University Graduate School Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster (hereinafter, “Phoenix Leader Education Program”) has aimed to foster global leaders (Phoenix Leaders) who can properly address radiation disaster based on extensive interdisciplinary expertise, and lead recovery efforts based on appropriate judgment and action, as well as a clear vision, and play leading roles in the international community.

In FY2016, the Program saw the first students complete the Program and a larger number of students newly enroll than the previous year. To make the Program still more active and efficient, we have devoted our efforts toward improvements. Additionally, the Radiation Disaster Medicine Course admitted a student with a medical license for the first time, a milestone that the Course had long aimed for. As a result, the Program has become able to develop human resources who are able to protect lives from radiation disaster in a more real sense. Additionally, faculty members at the Graduate School of Integrated Arts and Sciences newly participated in the Radioactivity Social Recovery Course, and Dr. Jacques Lochard, Vice-Chair of the International Commission on Radiological Protection (ICRP), joined us as a Visiting Professor. This means that the Program has become able to provide students even more valuable opportunities to study.

We have more active exchanges with overseas organizations than before. The Program succeeded in placing an activity base in Paris based on an agreement with the Centre d’Étude sur l’Évaluation de la Protection dans le Domaine Nucléaire (CEPN). We hope that more and more students will improve themselves through academic exchanges with organizations in Europe. We also set up a base in an area affected by the Fukushima Daiichi Nuclear Power Plant accident, and introduced a system for supporting exchanges between the Program’s faculty and staff members and local communities, to strengthen the system for learning from the fields. Moreover, the 2nd International Symposium of the Phoenix Leader Education Program’s Industry-Academia-Government Consortium, to be held on February 9, 2017, will see the participation of many people from the industrial, academic and governmental sectors in Japan and abroad, and contribute to the Program’s remarkable progress toward the construction of career paths for leaders of radiation disaster recovery and networks required for those purposes.

This Self Study Report shows the results of self-evaluation of the Program’s activities, including those abovementioned, according to 22 points under nine criteria as usual, and the progress of improvement of issues identified in the previous year. We hope that experts in the industrial, academic and governmental sectors in Japan and abroad will offer us advice based on this report, and that, based on such valuable advice, we will further develop this Program into a human resource development program that can match the expectations of people around the world. We look forward to your unreserved evaluation and advice.

January 2017

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FY2016 Self Study Report

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I. List of Issues from results of External Evaluation in last year

We extracted the following 11 issues that had scored a rating below 3.5 out of 4 from the Phoenix Leader Education Program External Evaluation FY2015, and attempted to improve the program's activities in FY2016 concerning these issues. Details of the improvements are described below, with reference to major points related to each issue.

No	Issue	Criterion	Page
1	An immediate discussion on the future of the Program following the end of MEXT financial support must be carried out.	Point 2-②	15
2	Subjects regarding radiation risks should be included in common subjects.	Point 5-①	25
3	Subjects related to politics and religion should be included in lectures or programs that address global activities.	Point 5-①	25
4	Practical training options at institutions that handle radiation emergencies such as the Radiation Emergency Assistance Center/ Training site at the Oak Ridge Institute should be made mandatory for all trainees of this program.	Point 5-①	25
5	A measure whereby a senior student is in charge of part of the lectures or exercises for undergraduates should be introduced to deepen senior students' practical understanding, knowledge and experience.	Point 5-①	25
6	The senior students should learn firsthand about what is necessary to work as a Phoenix Leader through experience that would launch a project to be implemented and completed with the participation of volunteers (including local volunteers). Hiroshima University should provide the necessary support if the project is deemed worthwhile and gains official approval.	Point 5-①	25
7	The survey and research results regarding problems and challenges should be disclosed at the disaster recovery sites in order to enhance students' motivation to learn and grow. Thus far the results have only been released in specialist magazines when in fact it is the general public as a whole that needs this information. This expanded information dissemination approach would increase overall awareness thereby helping to promote a faster recovery.	Point 5-①	25
8	It should be clear just how competitive the Phoenix Leader Education Program is, and the impact of the existing mechanisms for developing students' leadership abilities.	Point 5-①	25

9	Faculty members, the most advanced Students, in conjunction with experienced, outside experts in the management of radiological disasters and their long term consequences, should cooperate to contribute to the management of the strategic issues of the program.	Point 5-①	25
10	The Program should consider offering practical training on how to gather, organize and disseminate information, and on the approach to setting up and effectively managing an organization, through internships at emergency response and relief agencies, news organizations, metrological information agencies, etc.	Point 5-①	25
11	The diversity in society should be reflected in the Program internships from the perspective of encouraging and promoting student diversity.	Point 5-①	25

II. Evaluation of individual criteria

In this self-evaluation report, the activities and achievements of the Program are evaluated based on specific points set under nine criteria. With regard to the 11 issues identified by the External Evaluation FY2015 (described earlier), the status of improvement is reported in connection with the related points of each criterion. The description of each evaluation is followed by a list of major reference materials, which are provided as concrete grounds for the evaluation. These reference materials are contained in “Reference Materials for Self Study Report FY2016”. The numbers of the “major reference materials” listed in this self-evaluation report corresponds to those in the “Reference Materials for Self-Evaluation Report FY2015”.

Criterion 1. Purpose of the Program

Point: 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?

【Explanation and Analyze the Situation】

Since its adoption by the MEXT “Program for Leading Graduate Schools,” the Program has aimed to develop “Phoenix Leaders,” or global leaders who have the judgment and behavioral abilities to take appropriate action in circumstances of radiation disaster and lead recovery with a clear philosophy and innovative knowledge across disciplines. To this end, we have established a new academic field called “Radiation Disaster Recovery Studies,” which enables a multidisciplinary approach ranging from medicine to environmental studies, engineering, science, social science, education and psychology.

In FY2014, this Program, which was accepted as one of the 2011 Programs for Leading Graduate School, underwent an interim evaluation by the JSPS* Committee for Program for Leading Graduate Schools. In March 2015, the Program was assessed as “Category A: Efforts have been made in accordance with the plan and if ongoing efforts are continued, it is expected to achieve the purpose of the Program.

We held the 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development in February 2017 to share understanding about the establishment of career paths for Phoenix Leaders with participants from many organizations and companies, including MEXT, and strengthen collaborative relationships with them, aiming to fulfill the purpose of the Program.

* JSPS: Japan Society for the Promotion of Science

【Reference Materials】

- 21 Interim evaluation results of “Program for Leading Graduate Schools of FY 2011”
- 50 Program_the 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development

Criterion 2. Implementation Structure

Point 2-① Does the Program have guidance and student-support systems appropriate for achieving its purpose?

【Explanation and Analyze the Situation】

To offer interdisciplinary research guidance, the Program has a guidance system whereby each student has at least four advisors: one primary advisor and at least one co-advisor from each of the three courses. To address the problem of the relatively small number of Program members in the Radioactivity Social Recovery Course, which had sometimes been raised thus far, two more instructors from the field of Human Behavior Study, Graduate School of Integrated Arts and Sciences, and the Department of Management Studies, Graduate School of Social Sciences, were appointed as Program members in the social science field in FY2016, to offer more thorough guidance in social sciences.

Additionally, the Program provides students with opportunities to receive guidance and advice on daily occasions such as classes and report meetings, with the participation of researchers from outside the University as Program members. This guidance system based on cooperation across different graduate schools and organizations has enabled the Program to offer education that complies with its purpose of fostering “excellent students who are both highly creative and internationally attuned, and who will play leading roles in the academic, industrial and governmental sectors across the globe,” through interdisciplinary omnibus lectures and practical training.

Moreover, the Program signed a memorandum of understanding (MOU) with the Centre d’Étude sur l’Évaluation de la Protection dans le Domaine Nucléaire (CEPN) to ensure the organizational collaboration with the Program in guidance and support for students. The Program has agreed to set up a collaboration base with CEPN for student recruitment and educational and research exchanges in European countries. Furthermore, MOU with the University of California Berkeley is planning to be signed in FY2016. The Program’s efforts to establish world-class guidance and student-support systems have been steadily progressing.

The Program has also established student-support systems to enhance students’ solid understanding of interdisciplinary education, including the appointment in the majority of compulsory subjects of excellent graduate students as teaching assistants (TAs), who provide language support, produce DVDs for review use, and offer other kinds of support.

Furthermore, the Program adopted a system in FY2014 whereby teaching mentors, student consultant mentors (staff members) and senior-student mentors provide

individual consultations, and initiated lunch meetings with mentors and students in 2015. The Program has thus established a mentor system to support students in interdisciplinary learning activities and respond to their questions and anxieties on a daily basis.

【Reference Materials】

- 22 List of Program Members
- 23 List of Academic Advisers
- 24 List of Part-Time Lecturer
- 29 List of Lunch Meeting

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

Issue 2: An immediate discussion on the future of the Program following the end of MEXT financial support must be carried out.

【Explanation and Analyze the Situation】

The Hiroshima University Leading Program Organization (hereinafter, “the Organization”), with the University’s President as Director, has succeeded in continuing to systematically manage and operate the Program. The Leading Program Organization Steering Committees as the Organization’s consultation body, with the participation of all the graduate school deans of Hiroshima University, is in charge of making decisions on important issues, including financial aid measures for students and successful examinees in entrance examinations or Qualifying Examinations (hereinafter “QE”), and successful candidates for program completion. The operation of the Meeting of the Phoenix Leader Education Program (hereinafter, “the Program Members’ General Meeting”), comprising this Program’s members, and the Steering Committee for the Phoenix Leader Education Program (hereinafter, “the Steering Committee”) has been improved in efficiency, with a smaller number of meetings than in FY2015, through the attempts of each consultation body to upgrade the methods of time schedule management concerning planning and operation and carefully select important agenda items.

In FY2015, with the aim of maintaining and developing this Program after the period of MEXT’s support expires in March 2018, we revised the requirements for students’ program completion and newly planned more effective and efficient curricula and budgets to achieve the purpose of the Program, making reference to cases of other universities’ Leading Graduate Education Programs.

With regard to the organizational system, financial aid for students, and other matters, suspension of tuition fee collection and other measures after the end of MEXT’s support are under consideration, and the University plans to announce its policy on these issues in the middle of 2017.

Additionally, to further develop the Program, we are planning to apply for another support program of MEXT titled “iCODE Program (Program for inter-institutional, inter-sectional Collaboration on innovative Doctoral Education) (provisional)” in 2018 FY and adopting as one of them will enable us to extend our educational activities and financial support for students. Building network for educational and research collaboration is essential requirement for the iCODE Program to realize students’ learning opportunity in inter-institutional collaborative project, support system for part time PhD students in inter-sectorial Collaboration and so on. Thus we are

enhancing relationship with our partners and build new relationship with potential partners. Concluding MOU with the National Graduate Institute for Policy Studies, (GRIPS) and with the Centre d'Étude sur l'Évaluation de la Protection dans le Domaine Nucléaire (CEPN) in this February can be part of firm foundation of new project.

We also held an International Symposium of the Industry-Academia-Government Consortium to strengthen collaborative relationships in fostering Phoenix Leaders.

【Reference Materials】

- 25 Annual Plan
- 26 Agenda List of the Hiroshima University Leading Program Organization Steering Committee
- 27 Program Members' General Meeting Agenda List AY2016
- 50 Program_the 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development

Criterion 3. Program Members and Education Supporters

Point 3-① 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?

【Explanation and Analyze the Situation】

The Program maintains a research guidance system whereby every student has at least four advisors comprising one primary advisor and at least one from each course (including advisors other than Program Members), and an education system for implementing the curricula with the participation of external partner academic institutions and organizations.

The Program also offers classes taught by leading researchers and professionals in radiation disaster recovery from outside the University, who serve as part-time lecturers in the Program. To help these external lecturers share understanding of the positioning and goals of their classes with each other, in FY2015 we improved the Teaching Handbook and added to it a Curriculum Map, which clearly illustrates the learning objectives and goals of each class. Additionally, in FY2016, we revised the Teaching Handbook again in the wake of the curriculum revision, and reconfirmed the positioning of each class and the systematic structure of the curricula at the 8th Education Seminar.

【Reference Materials】

- 23 List of Academic Advisers
- 05 Teaching Handbook
- 54 Flyer_ the 8th Educational Seminar

Point 3-② 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?

【Explanation and Analyze the Situation】

In addition to establishing an interdisciplinary guidance system within the University, the Program provides students with the guidance of external experts in radiation and radiation disaster recovery across different organizations and countries. Annual international symposiums, which unite these experts, offer opportunities to confirm the achievements of the Program through presentations made by students and speakers' discussions.

In FY2016, we succeeded in strengthening our system for fostering human resources who can take charge of the management of recovery from radiation disaster from a global perspective, by commissioning two leading experts working at international organizations to serve as Visiting Professors, Dr. May Abdel-Wahab, Director of the Division of Human Health, International Atomic Energy Agency (IAEA) and Dr. ice-Chair of the International Commission on Radiological Protection (ICRP) in the Program. Dr. May Abdel-Wahab (IAEA), taught two classes on the compulsory subject "Large-scale disaster and international cooperation." Discussions in her classes based on the IAEA's duties and the situation after the Fukushima No. 1 Nuclear Power Plant accident have broadened students' interest in disaster management across national borders, leading to their stronger interest in career building in international organizations. Additionally, a psychology expert newly participated as a Program Member in the Radioactivity Social Recovery Course, taking charge of not only research guidance for individual students but also common subjects. As a result, the Program's interdisciplinary guidance system is further improved.

Moreover, Program Members reconfirmed the positioning of classes and the systematic structure of the curricula at the 8th Education Seminar.

In February 2017, we held the 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development to strengthen our student support system, with external support based on collaboration between industry, academia, and government.

【Reference Materials】

- 51 Flyer, Program_the 6th International Symposium
- 22 List of Program Members
- 24 List of Part-Time Lecturer
- 54 Flyer_ the 8th Educational Seminar

50 Program_the 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development

Criterion 4. Status of Accepting Students

Point 4-① Does the Program have a definite policy and criteria for admitting students? Does the University Publicize those criteria?

【Explanation and Analyze the Situation】

We created a student recruitment pamphlet and application guide for admission for October 2016 enrollees (for the secondary registration) and October 2017 enrollees, which spell out the educational goals of this Program, what type of students we seek, our basic policy for student selection, and our admissions policy. We not only sent these documents to universities in Japan and abroad, related organizations and Program Members but also posted them on the Internet to broadly share information about admissions. We also conducted domestic PR activities, including briefings on the Program and the entrance exam, at the University and its Tokyo office. Basically aiming to have all Program Members involved in PR activities, we have held public briefing meetings not only under the Program's name but also at the graduate schools and academic societies to which the Program Members belong, as well as striving to distribute materials. Moreover, we accepted three Indonesian missions (with a total of 46 members) to the University in FY2016, and held briefing meetings for them, resulting in the admission of excellent candidates.

To learn what kinds of media are effective for spreading information, in August 2016 we asked 36 current Program students to reply to a questionnaire about what PR media they had used to acquire necessary information on the Program before being admitted. This questionnaire survey found that 36% of the respondents had obtained information from Program Members, 29% from a member of the University (teacher or student), 14% from the Program's website, and 14% from other PR media. Based on this result, we published admissions information on the University's in-house bulletin and its website for students, to ensure the dissemination of information within the University. We also improved and simplified the Program's website.

For PR purposes, information about the Program has been published in journals and other publications, including *Kyoshoku Katei* (lit. "Teacher training course"), *Jikken Igaku* (lit. "Experimental medicine"), *Cell Technology*, the *Journal of Radiation Research*, and *Resident Note* since FY2015. We have also posted information about the Program on websites in Japanese on undergraduate and graduate education such as *Web Daigaku/Daigakuin-ten* and *Daigakuin e Iko*.

【Reference Materials】

- 31 Application Guide for Admission
- 32 Flyer_Application Guide for Admission

- 35 List of Overseas Explanation Meetings of Entrance Examination
- 34 List of Domestic Explanation Meetings of Entrance Examination
- 37 Questionnaire (media research)
- 38 List of Journals in which Application Notice were published

Point 4-② Does the Program employ an appropriate system to select students according to its admission policy? Does the system function well?

【Explanation and Analyze the Situation】

We administered entrance examinations for the primary and secondary registration to select October 2016 enrollees (fifth-term students).

All of these exams were administered with the participation of not only the Program Director, Program Members whom examinees wanted to be their primary advisors, and other Program Members as internal members of the Selection Committee, but also external members from Mitsubishi Heavy Industries, Ltd. and Chugoku Electric Power Co., Inc. Students were selected from the perspectives of industry, academia and government.

These exams comprised two steps: the first selection (examination of documents) including an essay test for examining examinees' expertise, reasons for hoping to join the Program, and interdisciplinary application abilities; and the second selection (oral examination) conducted in the form of a two-day-and-one-night camp, where individual interviews, group interviews and presentation sessions were held in English to examine students' language proficiency, communication abilities, and presentation skills.

As a result of the selections thus conducted, the Program admitted nine students as October 2016 enrollees: seven through the general admissions procedure and two for the Quota of Physicians Protecting Lives from Radiation Disaster. The students admitted for the Quota, newly set in FY2016, included a physician engaged in advanced emergency medical service and a licensed dentist. The three courses were able to evenly accept three enrollees each, resulting in a cosmopolitan learning environment where excellent students from 12 countries could develop themselves with mutual help in friendly rivalry.

While the entrance examinations for October 2017 enrollees, which were administered with the participation of Selection Committee members from inside and outside the university, included individual and group interviews and presentations in English as with the previous year's exams, we improved the time schedule to lessen the burdens on Selection Committee members, enabling the oral examination to be completed within one day.

Because it has been pointed out that the submission of documents for the Preliminary Evaluation for Application Eligibility might impose an excessive burden on international examinees, we have changed the rule so that only international students who have learned Japanese are asked to submit these documents, though on an optional basis.

【Reference Materials】

- 36 List of Students and Attendees to Explanation Meeting of Entrance Examination
- 33 Application Guide for Recommendation Entrance Examination

Point 4-③ 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?

【Explanation and Analyze the Situation】

The Entrance Examination Committee of the Program verifies each fiscal year that students are accepted appropriately in accordance with the purpose of the Program, and identifies areas for improvement. Verification results are reflected, as needed, in improving the screening methods and PR activities for the following fiscal year.

In FY2015, the Program introduced a recommendation-based exam quota called the Quota of Physicians Protecting Lives from Radiation Disaster, to acquire licensed medical experts who can provide diagnosis and treatment in Japan, as students in the Radiation Disaster Medicine Course. The new quota exam brought the course two enrollees in FY2016.

【Reference Materials】

33 Application Guide for Recommendation Entrance Examination

Criterion 5. Content and Means of Education

<p>Point 5-① Does the Program have systematic curricula appropriate to fulfill its goal and suitable for granting academic degrees? Are the subjects to be taught well arranged in line with the purpose of the Program?</p>
<p>Issue 2: Subjects regarding radiation risks should be included in common subjects.</p>
<p>Issue 3: Subjects related to politics and religion should be included in lectures or programs that address global activities.</p>
<p>Issue 4: Practical training options at institutions that handle radiation emergencies such as the Radiation Emergency Assistance Center/ Training site at the Oak Ridge Institute should be made mandatory for all trainees of this program.</p>
<p>Issue 5: A measure whereby a senior student is in charge of part of the lectures or exercises for undergraduates should be introduced to deepen senior students' practical understanding, knowledge and experience.</p>
<p>Issue 6: The senior students should learn firsthand about what is necessary to work as a Phoenix Leader through experience that would launch a project to be implemented and completed with the participation of volunteers (including local volunteers). Hiroshima University should provide the necessary support if the project is deemed worthwhile and gains official approval.</p>
<p>Issue 7: The survey and research results regarding problems and challenges should be disclosed at the disaster recovery sites in order to enhance students' motivation to learn and grow. Thus far the results have only been released in specialist magazines when in fact it is the general public as a whole that needs this information. This expanded information dissemination approach would increase overall awareness thereby helping to promote a faster recovery.</p>
<p>Issue 8: It should be clear just how competitive the Phoenix Leader Education Program is, and the impact of the existing mechanisms for developing students' leadership abilities.</p>
<p>Issue 9: Faculty members, the most advanced Students, in conjunction with experienced, outside experts in the management of radiological disasters and their long term consequences, should cooperate to contribute to the management of the strategic issues of the program.</p>
<p>Issue 10: The Program should consider offering practical training on how to gather, organize and disseminate information, and on the approach to setting up and effectively managing an organization, through internships at emergency response and relief agencies, news organizations, metrological information agencies, etc.</p>
<p>Issue 11: The diversity in society should be reflected in the Program internships from the perspective of encouraging and promoting student diversity.</p>

【Explanation and Analyze the Situation】

Class instructors constantly refer to the Teaching Handbook and use the Curriculum Map and Rubric (guidelines for achievement criteria) to design and

conduct classes, while confirming the positioning of each class and considering its content and level. In FY2016, aiming to maintain and develop the Program after the expiration of the period of MEXT's support, we revised the curricula referring to the numbers of credits required for program completion at other universities implementing Leading Graduate Education Programs, to enhance both the effectiveness and the efficiency of our Program.

With regard to Issue 2, the Program's learning goals include understanding "the impact of radiation on the human body," "the impact of low dose exposure on human health," and "the impact of radiation on children before and after birth." While classes in subjects related to these goals have dealt with radiation risks, we revised the syllabus to make it more systematic.

The advice of the External Evaluation Committee from which Issue 3 is extracted means that activities on a global scale require understanding of the social background of regional societies. In this Program, Issue 3 should be resolved using classes in subjects related to the learning goal of "Being able to make necessary decisions and coordination in international groups to accomplish objectives." After sharing this issue at the 8th Education Seminar, we decided to deal with the social background of regional societies during a short-term fieldwork. Additionally, as an extra-curricular activity, we held a seminar in March 2016 to discuss scientific and technological developments against the background of social contexts, with the participation of Professor Tateo Arimoto of the National Graduate Institute for Policy Studies (GRIPS), as an invited speaker. For FY2016, we are also planning to deepen students' understanding of politics, religions and cultures through a seminar offered in cooperation with GRIPS.

Concerning Issue 4, most Program students currently attend courses at the Radiation Emergency Assistance Center/Training Site (REAC/TS), Oak Ridge Institute for Science and Education. After the expiration of the period of MEXT's support, we will continue to offer practical training through common courses using the Hiroshima Phoenix Training Center (HiPTC) within the University, and participate in training offered by the Hiroshima International Council for Health Care of the Radiation-exposed (HICARE). Moreover we can give students various opportunity including oversea trainings and build an independent education-training system with developed resources within the iCODE Program mentioned regarding point2-2 and it is also an important goal of the Program.

In response to Issues 5 and 6, we are planning to introduce in the Short-term Fieldwork compulsory to first-year students, a problem-solving project that first-year students will take the initiative in planning and implementing in collaboration with

local NPOs and other parties, with senior students appointed as TAs to assist first-year students, from the next time and onward.

To resolve Issue 7, we took the measure of creating a webpage on which students' achievements are showcased to the wider public, in order to enhance students' motivation.

Concerning Issue 8, we select students placing high priority on the criteria of aptitude and the capabilities required to be a leader, including motivation and communication ability. We define "global skills," "management skills," and "interdisciplinary skills" as the capabilities that all Phoenix Leaders should have, and supervise students' levels of achievement based on the Curriculum Map and Rubric after their enrollment.

In response to Issues 9, we have experts who are in front line of research relating to radiation disaster or radiation as program members from Fukushima Medical University, Fukushima University, Tohoku University, Nagasaki University and on. And we have practitioners such as local medical doctor or officer of nuclear regulatory agency as part-time teachers. Furthermore, we have Dr. May Abdel-Wahab (Director, Division of Human Health at the International Atomic Energy Agency (IAEA)), Jacques Lochard (Visiting Professor, Hiroshima University, International Commission on Radiological Protection (ICRP)) as our visiting professors. Additionally, our annual international symposiums have been functioning opportunity of exchange among teachers, students and experts from outside of university. We are going to held it titled "Reconstructing Radiation Disaster-Affected Communities: The mediator's role in the recovery Process" involving public speakers from Fukushima as well as experts in our discussion. We expect to extend those activities for exchange after adopting as the iCODE Program mentioned above.

In response to Issues 10 and 11, we have continued efforts to increase the number of host organizations of internship programs with the support of our partner organizations in Japan and abroad. In FY2016, we newly obtained the opportunity to send our students to participate in long-term internship programs offered by the Centre d'Étude sur l'Évaluation de la Protection dans le Domaine Nucléaire (CEPN) and the Institut de Radioprotection et de Sûreté Nucléaire (IRSN), both in France; the Memorial Sloan Kettering Cancer Center and the Pennsylvania State University, both in the U.S.; and the Association of Indonesian Alumni from Japan; and in short-term internship programs offered by the MD Anderson Cancer Center in the U.S. Additionally, the 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development, held in Tokyo on February 9, 2017 aimed to facilitate network building between industry, academia

and government, and it is expected that the Program will use the results of this symposium to provide students with more and better opportunities to learn outside the University and participate in internship programs at a wider variety of host organizations. Moreover, following the opinion of external evaluation members, we reviewed assignments of internship programs and find verity of activities. We will continue this review and hope to work with internship providers to give students chance to gain necessary practical skills.

【Reference Materials】

- 05 Teaching Handbook
- 54 Flyer_ the 8th Educational Seminar
- 02 Code on the Curriculum Map
- 03 Effort and Achievement Rubric
- 01 By-Laws for the Completion
- 53 Seminar report_Prof.Arimoto
- 09 Short-term Fieldwork Schedule FY2016
- 57 List of Retreats
- 58 Guide_3rd Cross Disciplinary Exchange Forum
- 39 List of Internship

Point 5-② 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?

【Explanation and Analyze the Situation】

We have an online system for supervising interdisciplinary coursework (systematic subject registration) and research work under the guidance of instructors in different fields. Assignments of all classes are given and performed via the class support system Bb9. We also distribute learning e-portfolios to students, to supervise their level of goal achievement. The learning e-portfolio, designed based on the Curriculum Map and Rubric, shows each student's level of achievement based on his/her academic record, the number of earned credits, and the papers he/she has written. Students can upload their assignment papers for classes via Bb9 onto the Learning e-Portfolio. This entire online system helps each student manage his/her own learning, and enables his/her primary advisor and co-advisors to provide him/her with effective and efficient guidance, while checking his/her level of goal achievement.

As a main feature of our learning process supervision system, we administer the QE in the third semester for four-year-course students and in the fourth semester for five-year-course students, the results of which are used to measure their levels of achievement and decide whether they are qualified to continue attend the Program. We have administered six QEs as of September 2016, and 25 examinees have passed them. The QE contains written tests on expertise in multiple disciplines, an oral exam in English on each student's written research project, and an aptitude and capability test based on the learning e-portfolio.

In FY2015, we decided that students in "Radiation Disaster Recovery Studies," which is a compulsory subject in the final stage of the Program, must write a "Radiation Disaster Recovery Studies Report" as the final product of their studies in the Program, and make a presentation at the Radiation Disaster Recovery Studies Report Meeting, which effectively serves as an examination in public for the program completion, the results of which are used as a requirement for the credits in the subject. In September 2016, two students completed the Program by fulfilling the requirements for the completion of the entire Program, including the subject Radiation Disaster Recovery Studies, and passed the PhD dissertation examination by the graduate school faculty meeting.

【Reference Materials】

- 05 Teaching Handbook
- 02 Code on the Curriculum Map
- 03 Effort and Achievement Rubric

- 01 By-Laws for the Completion
- 06 Guideline on the Learning e-Portfolio Operations
- 08 QE Examination Implementation Plan
- 07 Guide to Implementing Qualifying Examination
- 16 Code on Implementing Radiation Disaster Recovery Studies
- 17 Syllabus of Radiation Disaster Recovery Studies

Point 5-③ Does the Program have advanced educational functions sufficient to offer high-level practical curricula?

【Explanation and Analyze the Situation】

This Program offers education based on the latest results of the most advanced research and practices in the field of radiation disaster recovery through classes taught by not only the university's faculty members but also external researchers and professionals appointed as part-time lecturers, all of whom lead this field. In 2016, we succeeded in providing students with the opportunity to directly learn from a person in charge of world-class practices by inviting Dr. May Abdel-Wahab, Director of the Division of Human Health, IAEA, to teach two classes on the compulsory subject "Large-scale disaster and international cooperation" as a Visiting Professor.

The Program also continuously offers learning opportunities at research institutions specializing in radiation and radiation disaster recovery and in disaster-affected areas. For example, we continue to send students to the Radiation Emergency Assistance Center/Training Site (REAC/TS), Oak Ridge Institute for Science and Education to receive advanced practical training. We also invite experts in the industrial, academic or governmental sectors to speak at biannual retreats or seminars (held irregularly) and directly communicate with students. Students can submit reports on these activities as assignments for Multidisciplinary Seminar subjects. Participation in these activities, though not mandatory, enables students to acquire knowledge in various fields. The Program also provides students with financial aid to cover travel and other expenses necessary for participating in domestic and overseas academic conferences, in order to encourage students to learn the most advanced research achievements on their own initiative. Students are also allowed to submit reports on academic conferences in which they participate as assignments for Multidisciplinary Seminar subjects, on the condition of screening by the Education Committee. Moreover, in FY2016, post QE students had the opportunity to deepen their understanding of self-help activities by residents of Fukushima Prefecture, through direct dialogues with the residents and supporters under the guidance of Dr. Jacques Lochard.

To cap each year's education, this Program holds an annual international symposium. Students play the role of members of the working group for this symposium, and participate with high motivation in discussions for preparation, from the early stage of defining the symposium's concept. This symposium has a valuable educational function, providing students with the opportunity to not only learn the achievements of advanced research and practices but also share and discuss the results of their learning with a wider range of people.

【Reference Materials】

- 12 Syllabus, Natural Disasters and International Cooperation
- 48 Application Guide for Training Course of REAC/TS
- 55 List of Field Visits
- 57 List of Retreats

- 52 List of Seminars
- 13 Guide to the Organization of Interdisciplinary Integrated Seminars
- 14 List of Interdisciplinary Integrated Seminars
- 51 Flyer, Program_the 6th International Symposium

Point 5-④ Does the Program have a mechanism to develop students' communication and negotiation abilities so as to foster active leaders who will address global challenges?

【Explanation and Analyze the Situation】

All compulsory subjects in this Program are taught in English, so students are required to be always ready to communicate with others in English. Additionally, with overseas internship programs and training at REAC/TS, etc., our educational system works well in motivating students to test their own international communication and negotiation abilities and devote their effort to further improving such abilities.

To enhance students' English communication abilities, the Program offers the subjects of Scientific English, English Communication, English Rhetoric, and English Presentation, taught by native English speakers, which are designed to enable students to experience real settings for communication in the global society. With full-time instructors teaching these English subjects, we offer all classes in these subjects at the two campuses to which the Program students belong. These small-group classes can deal with specific issues on the students' initiative. Building on a foundation of previous successes, the efforts by the Phoenix Leader Education program to ensure that students' English communication ability shows ongoing progress and improvement continue to bear fruit. Some of the more concrete examples of this English language development include: 1) an increase in conference oral and poster presentations; 2) program professors reporting an increase in conversation participation, students' willingness to communicate as well as an observed increase in speaking confidence; 3) a measurable improvement in graduate students' ability to parse and summarize academic papers; and finally 4) students' specific desire to improve the "process" of their writing via the creation of "research area" and "laboratory" specific journal writing templates and vocabulary databases.

From FY2015, students are required to prove their English proficiency with their scores on English proficiency tests or other means, to participate in training or internship programs abroad. This has helped increase students' motivation to learn English, resulting in many students meeting the requirement.

【Reference Materials】

- 39 List of Internship
- 19 Syllabi of Lectures in English
- 20 Phoenix Leader Education Program English Outcomes Report
- 04 Handling of Evaluation of Learning Achievement of English Education
- 49 Policies on the Language Requirements for Overseas Training

Point 5-⑤ Does the Program have appropriate syllabi in adherence with the spirit of curriculum organization and a system to use them effectively?

【Explanation and Analyze the Situation】

The syllabuses of all the subjects are appropriately prepared, and are shown to students not only on the class support system Bb9 but also on the Hiroshima University website, in both Japanese and English. On the occasion of the curriculum revision in 2016, we revised the Teaching Handbook, and reconfirmed the connection between classes and the direction of the new curricula at the 8th Education Seminar.

【Reference Materials】

- 54 Flyer_ the 8th Educational Seminar
- 05 Teaching Handbook

Point 5-⑥ Is the Program organized with due consideration given to students' autonomy and students who take courses outside their own fields?
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【Explanation and Analyze the Situation】

The Program has a thorough learning support system, whereby students can communicate with their advisor and class instructors using the class support system or Learning e-Portfolio wherever and whenever they want. The Program also has a system that enables students to receive advice about their troubles in learning from teaching mentors and senior-student mentors across the course boundaries.

As a form of consideration for Phoenix Program students undertaking independent study, we have rooms with Internet connection and furniture for graduate students' exclusive use. Additionally, to meet the needs of advanced-class students, who seldom have to attend common classes, in October 2016 we opened an Interactive Lab with booths exclusive to individual students, as spaces where students can study hard in friendly rivalry.

Moreover, to help October 2016 enrollees become accustomed to multidisciplinary learning soon, faculty members and senior students assisted them in following discussions at the 3rd Cross-disciplinary Exchange Forum held in October 2016. At this forum, students in small groups, with faculty members as facilitators among them, had active discussions based on lectures by Dr. Seiji Yasumura, Professor at Fukushima Medical University and a Program Member for the Radiation Disaster Medicine Course, and Dr. Kiyoshi Shizuma, Professor by Special Appointment at Hiroshima University and a Program Member for the Radioactivity Environmental Protection Course.

【Reference Materials】

- 45 Mentor Handbook 2016
- 46 Current Situation and Improvement of Student-Owned Space
- 58 Guide_3rd Cross Disciplinary Exchange Forum

Point 5-⑦ Does the Program have and use appropriate means of education for adult students in remote locations, etc., such as conducting classes using printed learning material (including corrections by mail), broadcasting classes, interview classes (including face-to-face classes), and classes using IT media?

【Explanation and Analyze the Situation】

This Program has built a system for continuously supporting students who study in the Program in remote locations while working there. Students living in the Tokyo metropolitan area can attend classes given mainly at Hiroshima University's Tokyo office. To offer tele-education-based classes, we prepared necessary equipment before the Program started: for example, a teleconferencing system for establishing audio-visual connection mainly between Hiroshima University's Higashi-Hiroshima and Kasumi Campuses on the one hand and partner organizations such as Fukushima University, Tohoku University, and the National Institute of Radiological Sciences on the other, and a document camera and other related devices useful for administering written examinations for students in remote locations and other purposes. Additionally, aiming to appropriately assist students in remote locations in independent study before and after their classes, we have provided interactive class education targeted at them, using a content recording and distribution system, which helps these students prepare for and review their classes.

Moreover, mid-career students living in Tokyo had attended English classes given by part-time lecturers at Hiroshima University's Tokyo office until July 2015. In FY2016, they completed long-term fieldwork, managing to spare the time for such activity despite their work. Their advisors accompanied them to the fieldwork sites to give them guidance. The students were evaluated on the content of their fieldwork and their presentation skills based on their written and oral reports.

【Reference Materials】

- 47 Device List for Remote Teaching System
- 10 AY2016 Long-term Fieldwork Report

Criterion 6. Outcomes of Education

Point 6-① 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 toward the goal of developing abilities required for Phoenix Leaders?

【Explanation and Analyze the Situation】

This Program has the clearly defined learning objectives and a system for evaluating students' achievement levels based on the outcomes of their learning, and has used this system for the QE. The interim evaluation by the JSPS, mentioned in relation to Criterion 1, rated this system highly, stating, "In terms of a world-class, well-established quality assurance system, it can be evaluated that QE consists of a written exam and an interview to check students' understanding and achievement levels, etc."

We use the Curriculum Map and Rubric to evaluate students' levels of achievement of the Program goals, and integrate the entire system ranging from class design to evaluation. Regarding common goals, students are required to reach the second stage of the achievement standards specified in the Rubric by their QE, and to reach the fourth stage by their Program completion.

In FY2016, we created a webpage named "Student Achievements" on our website and published students' papers, etc., there, to showcase the achievements of the Program.

Additionally, students have devoted their efforts to connecting their achievements with their future career by creating a Career Portfolio.

【Reference Materials】

- 05 Teaching Handbook
- 02 Code on the Curriculum Map
- 03 Effort and Achievement Rubric
- 40 Career Portfolio (extract)

Point 6-② From an analysis of the results of hearing students' opinions, including questionnaires, can it be concluded that the Program has produced favorable educational outcomes?

【Explanation and Analyze the Situation】

We ask students to evaluate the classes provided under this Program, using Hiroshima University's class questionnaire system.

With regard to short-term fieldwork in particular, we also conduct questionnaire surveys about individual activities included in its five-day itinerary. The findings from the questionnaire surveys have enabled us to continuously improve the short-term fieldwork and, as a result, receive participants from outside the university for three consecutive years. We have devoted our efforts to providing short-term fieldwork participants with the opportunities to learn what can be learned only in the fields, with the cooperation of Fukushima University, Fukushima Medical University, Minamisoma City, Minamisoma City General Hospital and other organizations. In FY2017, we will organize a seminar and workshop with the support of local organizations and NPOs, aiming to further develop the short-term fieldwork into a learning activity in which students play leading roles.

At the Faculty and Student Opinion Exchange Meeting, which we have held since FY2013, most of the opinions voiced by students at first concerned their requests for the Program's support. However, many students are currently ready to discuss their own ways of conducting activities, rather than making requests for support, at the meeting. We recognize this change as a favorable educational outcome of this Program.

【Reference Materials】

- 11 AY2016 Short-term Fieldwork Report
- 28 Code on Faculty and Student Opinion Exchange Meeting

Criterion 7. Student Support Systems

Point 7-① Does the Program offer an ideal environment where excellent students can inspire and compete with each other?

【Explanation and Analyze the Situation】

The Program offers an environment where not only students of the Program but also those from other universities can inspire and compete with each other.

The Program often offers students belonging to the Program the opportunity to communicate with each other in compulsory classes, at optional seminars, and on other occasions. The compulsory subject Short-term Fieldwork, during which students share activities with each other for about one week and exchange their views at the review meeting every day, provides them with the valuable opportunity to identify challenges to be solved in their learning. Every retreat also contains opportunities not only for students to listen to lectures, etc., but also for students and faculty members to discuss their studies with each other and inspire each other in an informal atmosphere.

In addition to the opportunities to exchange views with people in the Program, the Program offers students the opportunities to communicate with experts from outside the Program, from which the students draw great inspiration. The annual international symposium offers students a place to showcase the progress of their own research to a wide range of people. At the symposium, students are provided with the opportunity to make a presentation on their own research and obtain feedback from the wider community, including experts in Japan and abroad. The poster session, with awards given for excellent presentations, also facilitates competition among students in friendly rivalry. Additionally, in FY2014, Hiroshima University and other universities implementing the Programs for Leading Graduate Schools launched a new initiative to facilitate communication between students belonging to these universities, and the initiative has steadily developed into a place where excellent students can compete with and inspire each other.

In FY2014, we began to call for participants from other universities to implement the Programs for Leading Graduate Schools in the abovementioned short-term fieldwork. In FY2016, we also called for participants from the University of California, Berkeley and Colorado State University. As a result, we were able to have one participant from each of the two U.S. universities, two from the Disaster Nursing Global Leader Degree Program at Tokyo Medical and Dental University, and two from the Inter-Graduate School Program for Sustainable Development and Survivable Societies at Kyoto University.

【Reference Materials】

- 51 Flyer, Program_the 6th International Symposium
- 09 Short-term Fieldwork Schedule FY2016
- 11 AY2016 Short-term Fieldwork Report
- 57 List of Retreats

Point 7-② Does the Program offer financial support to students to enable them to concentrate their efforts and time on studies and research activities?

【Explanation and Analyze the Situation】

Since its launch, the Program has offered students an environment where they can concentrate their efforts and time on studies and research activities without financial concern, through various support measures, including a monthly grant of 180,000 to 200,000 yen, housing support, the lending of laptops, financial aid for research activities, and participation in domestic and overseas academic conferences. We also have rooms for the exclusive use of Program graduate students at both the Higashi-Hiroshima and Kasumi Campuses, so that they can freely use these rooms for various purposes, such as individual studies or academic journal club meetings.

Additionally, to address problems that can disturb students' studies and research activities in a timely manner, we monitor the situations faced by students using the mentor system and regular Faculty and Student Opinion Exchange Meetings. Moreover, in FY2015, we began to hold regular lunch meetings where students, faculty members and staff members could frankly communicate with each other, to prepare themselves to promptly handle the troubles that students face in their lives, etc.

【Reference Materials】

- 41 List of Substantial Support
- 28 Code on Faculty and Student Opinion Exchange Meeting
- 29 List of Lunch Meeting

Point 7-③ Does the Program support students in preparing and carrying out their autonomous and original research plans?
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【Explanation and Analyze the Situation】

This Program has established the foundations for creative research through interdisciplinary, cross-organizational, and international education, which is clearly distinguished from conventional graduate education. The Program also has a system for facilitating each student's research activities through such measures as financial aid for students' participation in academic conferences, compensation of long-term fieldwork/internships costs, and financial aid for post-QE students' research activities.

Soon after admission, students can receive financial aid for travel expenses to participate in academic conferences (100,000 yen for domestic conferences and 300,000 yen for overseas conferences annually). After they pass the QE, the financial aid is replaced by Research Grant of the Phoenix Leader Education Program, which amounts to a maximum of 500,000 yen per semester, to cover various expenses necessary for doctoral dissertation research, including travel, devices and books. After students submit a research plan, a cost estimate, etc., the screening committee consisting of the Program Director, the Program Coordinator, and the Course Leaders decides the amount of the aid money, which is paid after the University President approves the plan. Students can decide whether to participate in long-term fieldwork or a long-term internship, and can receive financial aid from the Program for travel and accommodation expenses necessary for fieldwork and research activities at specific organizations.

Additionally, the Program offers post-QE students the opportunities to participate in an activity called the Global Field Visit, provided by the Program in Japan and abroad, according to their academic interests. In FY2016, we provided post-QE students with the opportunity to participate in the Global Field Visit, which included visits to the base of the NPO "Ethos in Fukushima" in the Suetsugi district, Iwaki City and its support office for people evacuated outside Fukushima Prefecture, located in Yonezawa City, and participation in the ICRP Dialogue held in Kawauchi Village. Five students participated in the Visit.

【Reference Materials】

- 18 List of Research Topic
- 44 List of Supporting Participation in Academic Meetings
- 42 Guide to Research Grant
- 43 List of Research Grant Payments
- 56 Student's Report on Global Field Visit

Criterion 8. Facilities and Equipment

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

【Explanation and Analyze the Situation】

Classes in the Program are continuously provided at Hiroshima Phoenix Training Center, equipped with state-of-the-art devices. Students can use portable whole body counters, low-background Ge-detectors, whole-body decontamination shower devices, imaging analyzers, high volume air samplers, Geiger-Muller (GM) counters, and NaI scintillation survey meters, and other devices.

【Reference Materials】

15 Device list of Hiroshima Phoenix Training Center

Criterion 9. System for Quality Enhancement and Improvement of Education

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

【Explanation and Analyze the Situation】

Since this Program's launch in 2011, a PDCA cycle has been working well through the activities of the relevant Committees and Councils, including the Evaluation Committee. In FY2016 too, these Committees and Councils proposed plans and improvements, many of which were carried out.

The Program's system for incorporating students' opinions into improvements has continued to function well. In November 2016, a Faculty and Student Opinion Exchange Meeting was held with the participation of five faculty members, including the Program Director. At the meeting, students proposed that senior students participate in an international symposium operational working group, which would consist of new first-year students every year, and the decision to consider this proposal was made. Additionally, the Student and Mentor Lunch Meeting provided the valuable opportunity for students to ask faculty members questions and receive answers to those questions before engaging in short-term fieldwork, and share the significance of the fieldwork.

Additionally, the Program is unique in that evaluation from viewpoints outside the Program has greatly contributed to its improvements. Primary importance in terms of improvements of the Program has been placed particularly on a series of evaluations, including External Evaluation commissioned to experts outside the university, follow-up reports on on-site inspection by the Program Officer appointed by the JSPS, and interim evaluation by the JSPS Committee for the Program for Leading Graduate Schools. The issues identified through evaluation from an external viewpoint have been examined at Committees and the Program Members' General Meeting. In FY2016, these issues were resolved, resulting in representative measures to address issues and improve the Program, to which this Self Study Report is dedicated.

【Reference Materials】

30 Tasks of Program Officer (extract)

Conclusion

This year's Self Study Report thoroughly examines and describes the activities in the charge of each committee and the results of these activities according to nine criteria as usual. In FY2016 in particular, we considered measures to continue the Program, so this report dealt with the results of the consideration in self-check and evaluation. We believe that the Program's continued progress and its possibility of devising new pioneering initiatives have resulted from the support of members of the External Evaluation Committee, and the efforts of faculty and staff members, including the Course and other Committees.

The Evaluation Committee of Phoenix Leader Education Program would like to express its sincere gratitude to everyone for their generous cooperation.

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

Member of Evaluation Committee

Post	Name	Affiliation	Responsibility in Program
Vice President	Kenji Kamiya	Reconstruction Support/Radiation Medicine	Program Director Radiation Disaster Medicine Course
Professor	Masao Kobayashi	Institute of Biomedical & Health Sciences	Program Coordinator Radiation Disaster Medicine Course
Professor	Tetsuji Okamoto	Institute of Biomedical & Health Sciences	Radiation Disaster Medicine Course
Professor	Makoto Iwanaga	Graduate School of Integrated Arts and Sciences	Radioactivity Social Recovery Course
Professor (Special Appointment)	Kiyoshi Shizuma	Institute of Engineering	Radioactivity Environmental Protection Course
Student	Silvia Natsuko Akutsu	Graduate School of Biomedical & Health Sciences	Radiation Disaster Medicine Course
Student	Ooki Kurihara	Graduate School of Engineering	Radioactivity Environmental Protection Course
Student	Kabir Russell Sarwar	Graduate School of Education	Radioactivity Social Recovery Course

II. FY2016 External Evaluation Report

Introduction

The Phoenix Leader Education Program was accepted by MEXT as a 2011 Program for Leading Graduate Schools. Since welcoming the first students to enroll in our program in October 2012, we have carried out yearly self-evaluations followed by yearly external evaluations done by both domestic and over sea's experts.

The external evaluation committee members examine the state of the program based on the self-evaluation report, program reference material and scoring sheets that include nine criteria and twenty-two highlighted points for consideration. The evaluators also have the opportunity to verify the actual state of the Phoenix Program by meeting with faculty members and graduate students through consultation sessions at Hiroshima University. With this in mind, each committee member writes an external evaluation report, offers a rating for the criteria and standards using a four-point scale and provides specific written commentary for each criterion and standard.

The aim of the external evaluation report is to identify possible problems and challenges within the program based on the committee members' average evaluation score and their individual comments. By sharing and attempting to solve problems in cooperation with each committee member, we feel that we will be better prepared and able to improve our program.

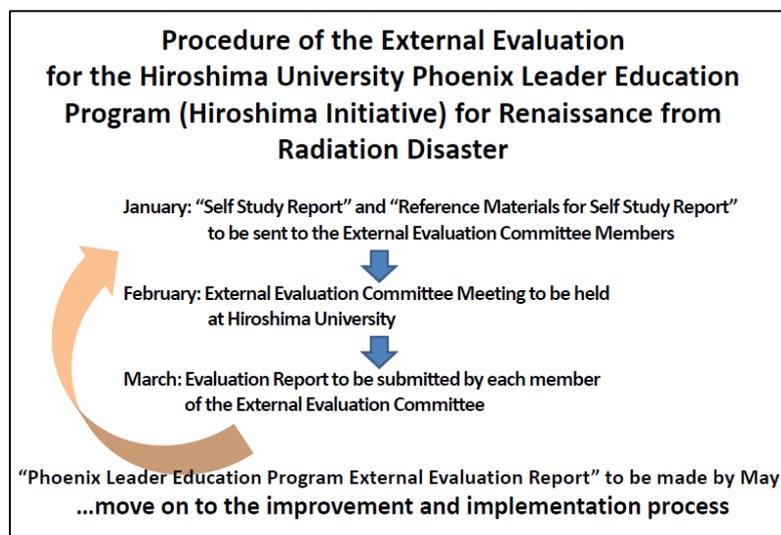
As a result of our repeated efforts to improve on challenging issues identified by the external evaluation, our program has finally received our target high average scores and is achieving its stated goals. This can be observed in the yearly increases in the program's average evaluation scores and the encouraging commentary from committee members. However, despite this high overall evaluation, we unfortunately received a poor evaluation with regards to the program's future vision. In other words, the question of our program's future continuity remains uncertain and we are taking immediate measures to address this uncertainty. We are also promptly attending to the other advice and recommendations in order to increase the benefits of our program for students and society.

We would appreciate your understanding and continued support.

April 2017

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**



FY2016 External Evaluation Report

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I . Phoenix Leader Education Program for Renaissance from Radiation Disasters

FY2016 External Evaluation Committee Meeting Agenda

1. Objective of FY 2016 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.

The Program produced its first graduates in FY2016 and welcomed five more graduate students than the previous year. At the same time, the program continues to work towards improvements that increase effectiveness and active learning.

The objective of the FY 2016 External Evaluation Committee Meeting is to gather valuable suggestions from External Evaluation Committee members regarding the future prospects of the program in order to make steady progress and improvement within the program.

2. Date & Venue

- 1) Date: Saturday, February 11, 2017, 10:00 a.m. – 11:30 a.m.
- 2) Venue: Medium Conference Room, 1F of Koujin Kaikan Conference Hall,
Kasumi Campus, Hiroshima University



3. Members of External Evaluation Committee FY 2016

Name	Title/Post
Tokushi Shibata	Adviser, 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
May Abdel-Wahab	Director of the Division of Human Health at the 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 (Document evaluation)	Professor and Vice- Chairman of Radiation Oncology, Columbia University Medical Center

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	Institute 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	Satoru Endo	Institute of Engineering	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	Silvia Natsuko Akutsu	Graduate School of Biomedical & Health Sciences Biomedical Science Major	Radiation disaster Medicine Course
Student	Ooki Kurihara	Graduate School of Engineering Civil and Environmental Engineering Major	Radioactivity Environmental Protection Course
Student	Kabir Russell Sarwar	Graduate School of Education Psychology 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 FY2015 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 0 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] Please place a checkmark in the box next to the most appropriate evaluation.

- 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

[Comments]

Member B:

Necessary improvements are being made every year in order to achieve their purpose.

Member F:

This is a great challenge to address transdisciplinary approach and the Phoenix programme is a clear contribution in this perspective.

Member G:

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

Criterion 2: Implementation Structure

Point 2-① Does the Program have guidance and student-support systems appropriate for achieving its purpose?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 2-① is satisfied
- Point 2-① is mostly satisfied
- Point 2-① requires partial improvement
- Point 2-① requires major improvement

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

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

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

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

Member	A	B	C	D	E	F	G	Average
Score	4	4	3	3	4	3	3	3.43

Criterion 2 Implementation Structure**Overall evaluation**

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- 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	3	4	4	4	4	4	4	3.86

[Comments]

Member A:

In the self study report, it says that they developed a new curriculum and budget in order to effectively maintain and achieve further growth of this program even after the end of assistance from the Ministry of Education, Culture, Sports, Science and Technology; however, we would like to see a more detailed input.

Member B:

As for the program's continuity, since discussions are proceeding with highly specific considerations, we can now expect to see further development in the future.

Member C

(Regarding issue 1)

Regarding policies after the end of assistance from the Ministry of Education, Culture, Sports, Science and Technology, I believe there is a need to clarify as soon as possible, in particular, about financial assistance measures for students.

The final evaluation of this program—in other words, the international recognition of the value of the academic degree of this program—will have a large impact on how future graduates of this program are able to work in the global environment. There is also a need to organize a support structure (career path, place for exchanging information) toward graduates.

Also, I believe that the program should encourage the acquisition of licenses, etc. issued by public organizations both in and outside of the country, so that it would be of help for students in selecting a career path after graduation.

Member F

As mentioned above, the main point would be to reinforce the pluridisciplinary in the research

works.

Member G

For Point 2.2 As mentioned in my overall program assessment, the future of the Phoenix program rests with successful application of the iCODE program through MEXT. A contingency plan should be in place just in case the funding for the new program is not immediately approved.

Criterion 3: Program Members and Education Supporters

Point 3-① 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 3-① is satisfied
- Point 3-① is mostly satisfied
- Point 3-① requires partial improvement
- Point 3-① requires major improvement

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

Point 3-② 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 3-② is satisfied
- Point 3-② is mostly satisfied
- Point 3-② requires partial improvement
- Point 3-② requires major improvement

Member	A	B	C	D	E	F	G	Average
Score	4	4	4	4	4	2	4	3.71

Criterion 3 Program Members and Education Supporters Overall evaluation
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[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- 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

[Comments]

Member A:

An educational guidance structure for all students has been amply developed, with one head instructor and at least one sub-head instructor designated from each course. Learning goals and learning objectives have been defined, which are presented to the students in an easy to understand manner. Meanwhile, when looking at the structure of responsibility, I believe that there are no documents that show how the responsibilities are divided among the instructors. Although I believe that in actuality, the structure enables instructors to coordinate amongst themselves to take appropriate responsibilities, the responsibilities should be written out.

It says that the support structure for students has been strengthened, but I would like to see its details written out.

Member B:

The instructors' organization is being enhanced every year.

Member F

As mentioned above, it would be beneficial to reinforce the involvement of the supervisors for research to also have a pluridisciplinary view of the situation of post accident.

Criterion 4: Status of Accepting Students

**Point 4-① Does the Program have a definite policy and criteria for admitting students?
Does the University publicize those criteria?**

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 4-① is satisfied
- Point 4-① is mostly satisfied
- Point 4-① requires partial improvement
- Point 4-① requires major improvement

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

Point 4-② Does the Program employ an appropriate system to select students according to its admission policy? Does the system function well?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 4-② is satisfied
- Point 4-② is mostly satisfied
- Point 4-② requires partial improvement
- Point 4-② requires major improvement

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

Point 4-③ 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 4-③ is satisfied
- Point 4-③ is mostly satisfied
- Point 4-③ requires partial improvement
- Point 4-③ requires major improvement

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

Criterion 4 Status of Accepting Students
Overall evaluation

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- 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 A:

The entrance exams are being conducted in a very careful and attentive manner. The program also accepts outstanding foreign students, as well as applicants with medical licenses and dental qualifications, and they deserve high appraisal for the positive results that they have demonstrated.

Member B:

The number of enrolling students had been declining until academic year 2015, but it has begun to increase in academic year 2016, demonstrating that steady results are being produced from the efforts that had been made toward student admission.

Member C

Since the submission of grade certificates from Japanese language proficiency tests, etc. have become an optional factor, the obstacle for non-Japanese students to enter the university has been reduced.

Member G

In order to continue to attract top students into the Phoenix program, a rigorous admission policy coupled with enrollment advertisement will be helpful. The student support and financial incentive of this program is excellent and should be able to bring highly motivated, well qualified students into the program.

Criterion 5: Contents and Means of Education

Point 5-① 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 5-① is satisfied
- Point 5-① is mostly satisfied
- Point 5-① requires partial improvement
- Point 5-① requires major improvement

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

Point 5-② 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 5-② is satisfied
- Point 5-② is mostly satisfied
- Point 5-② requires partial improvement
- Point 5-② requires major improvement

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

Point 5-③ Does the Program have advanced educational functions sufficient to offer high-level practical curriculums?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 5-③ is satisfied
- Point 5-③ is mostly satisfied
- Point 5-③ requires partial improvement
- Point 5-③ requires major improvement

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

Point 5-④ 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 5-④ is satisfied
- Point 5-④ is mostly satisfied
- Point 5-④ requires partial improvement
- Point 5-④ requires major improvement

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

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

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

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

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

Point 5-⑥ 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 5-⑥ is satisfied
- Point 5-⑥ is mostly satisfied
- Point 5-⑥ requires partial improvement
- Point 5-⑥ requires major improvement

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

Point 5-⑦ 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 5-⑦ is satisfied
- Point 5-⑦ is mostly satisfied
- Point 5-⑦ requires partial improvement
- Point 5-⑦ requires major improvement

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

**Criterion 5 Contents and Means of Education
Overall Evaluation**

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- 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	3	4	4	4	4	3	4	3.71

[Comments]

Member A:

The program can be highly commended for having implemented improvement measures for each of the many issues that were brought up at the previous evaluation.

After submitting the Radiation Disaster Recovery Studies Report, are they requiring that the contents of the report be submitted as a paper in an academic journal that undergoes peer review? Since I don't believe that there are any academic journals specializing in the field of Radiation Disaster Recovery Studies, I think it would be fine if the paper were submitted to an academic journal in a related field. I mention this because I believe many of the universities require that the doctoral thesis be submitted to an academic journal that has peer review.

Since I cannot tell how many students are participating in remote classes, I cannot comment on what kinds of equipment are necessary.

Member B:

The educational contents are being enhanced every year, but there is probably a need to consider creating an educational environment that, in some areas, do not specialize too much in the field of expertise, so that the students are encouraged to study voluntarily, which is a necessary aspect in nurturing leaders within society.

Member C

(Regarding issues 10 and 11)

I believe there is room for improvement to be made in the organizations accepting internships, and in the contents of the internship programs, in order to further improve the benefits of the internships. I believe that with internships, students experience how the company and other organizations contribute to society through the products and services that they provide, regardless of the type of industry or job, and the students receive the educational benefit of being able to visualize how they would be able to contribute to society through their area of expertise after graduation. In this program, the objective is to nurture leaders who promote radiation disaster recovery efforts; thus, I believe it would be even more beneficial if students were able to become aware of for whom their work is being performed through their educational experiences gained outside of the university. I also think that more practical internships that would lead to enhancing the career of the student (on site of disaster recovery, government offices responsible for disaster prevention, etc.) must also be implemented.

(Regarding issue 3)

I think it is highly meaningful that an opportunity to inspire a sense of responsibility was provided to the students through the seminar that takes a renewed look at the relationship between science and society/politics. I look forward to the promotion of education that gives students a vision of how global leaders should ideally be, in addition to the relationships with religions.

(Regarding issue 7)

With regards to the public announcement of research results, while making such announcements on the website is an effective means because it enables such information to be disseminated throughout the world and would also serve as a reason for having exchanges with researchers in other countries, I believe it is also necessary to create opportunities to make presentations to the general public using language that can be understood by everyone. When we are at the site of a disaster, there are many cases where the use of technical terms only leads to further confusion, so I believe it is necessary that students receive training on enabling the other person to understand through the use of easy-to-understand language.

Member F

More development on the skills to engage dialogue with local inhabitants affected by the Fukushima accident would be quite valuable. In addition, further considerations on the development already performed since the Chernobyl accident would allow to put their work in an historical perspective and to point out the need for further researches and supports induced by the Fukushima accident.

Member G

- This external reviewer is very appreciative that corrective measures in response of my previous concerns/ issues have been incorporated into the revised overall program.

- Through my interaction and meeting with several Phoenix students, I believe that the students have excellent communication skill.

- As I stated in my beginning overall assessment, while social program such as ecology and religions have been recommended by some panel members, in the humble opinion of this reviewer, these subjects are only secondary to a first rate training in radiological sciences.

- In my meeting with the students, a concern was raised that Journal Club, which serves as a forum to sharpen student's assessment on a subject of interest through reading and discussion of a published article, was not well supported by faculty, as there was usually no faculty attending who could serve as a modulator or a referee.

Criterion 6: Outcomes of Education

Point 6-① 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] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 6-① is satisfied
- Point 6-① is mostly satisfied
- Point 6-① requires partial improvement
- Point 6-① requires major improvement

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

Point 6-② Judging by the results of questionnaires and other hearings of students' opinions, are educational results and/or effectiveness improving?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 6-② is satisfied
- Point 6-② is mostly satisfied
- Point 6-② requires partial improvement
- Point 6-② requires major improvement

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

Criterion 6 Outcomes of Education Overall Evaluation

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- 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

[Comments]

Member A:

It is highly commendable that the program is producing improved results, such as succeeding for three consecutive years in having applicants from outside of the university participate in the short-term fieldwork, and in seeing changes to the contents being discussed at meetings between instructors and students with the passage of the years.

Member E

One of the desirable outcomes of any educational program is the practical aspect of obtaining a good job -and the job market for the Phoenix students should be good in both industry and government. But, some graduating students are having problems; and I think it should be a responsibility of all the faculty and the external advisory members to be as much help as they can to the students by providing contacts and references. These students are very specially educated/trained and needed by all countries; and they deserve any help possible to obtain sustainable incomes and opportunity.

Criterion 7: Student Support Systems

Point 7-① Does the Program offer an ideal environment where excellent students can inspire and compete with each other?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 7-① is satisfied
- Point 7-① is mostly satisfied
- Point 7-① requires partial improvement
- Point 7-① requires major improvement

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

Point 7-② Does the Program offer financial support to students to enable them to concentrate their efforts and time on studies and research activities?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 7-② is satisfied
- Point 7-② is mostly satisfied
- Point 7-② requires partial improvement
- Point 7-② requires major improvement

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

Point 7-③ Does the Program support students in preparing and carrying out their autonomous and original research plans?

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- Point 7-③ is satisfied
- Point 7-③ is mostly satisfied
- Point 7-③ requires partial improvement
- Point 7-③ requires major improvement

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

**Criterion 7 Student Support Systems
Overall evaluation**

[Evaluation Result] Please place a checkmark in the box next to the most appropriate evaluation.

- 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	4	4	4	4

[Comments]

Member A:

The program has a good educational environment, such as hosting daily general reviews and debates during short-term fieldwork, retreats, and interactive seminars. Their short-term fieldwork and international symposiums attract participation by students from both in and outside of the country, for which the program can be highly commended.

It would be good if we could find out the details of the interactive seminars.

Member B:

As we become able to see the overall research trend with the passage of each academic year, there is always the issue of seeing, on the other hand, a decline in the originality of the research. Thus, in the future, consideration needs to be given toward developing originality.

Member E

The poster and verbal presentations at this years' symposium were all excellent ; and, those students who won special recognition had obviously carried out remarkably advanced and important research which will be accepted by peer reviewed journals. This is clear evidence of the excellent laboratory facilities and the excellent guidance provided them in their research projects!

Member F

Due to the difficulty for students as well as for RP experts to address transdisciplinary approach, it would be useful to reinforce the capacity of students to handle their research work in such a perspective. For this purpose, further considerations on their exchange with senior experts and stakeholders engaged in this pluralistic approach could be useful and develop the autonomy of the students in the future.

Member G

The Phoenix program provides superb student support, both financially and programmatically when compared to most other graduate training programs in developed countries.

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] Please place a checkmark in the box next to the most appropriate evaluation.

- 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	4	4	4	4	4	4	4	4

[Comments]

Member G:

The Phoenix program at Hiroshima University has excellent research facilities and equipment available to the students.

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] Please place a checkmark in the box next to the most appropriate evaluation.

- 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

[Comments]

Member C:
 With regards to students' evaluations (opinions, wishes, etc.) regarding the overall program, please consider including it in the reference materials for the self-study report.

Member G:

- The Phoenix program is unique in its educational missions, that of training the next generation of radiological scientists who are proficient in communication skill and with an understanding and means to deal with public emotion during a radiological event.
- Overall system for quality enhancement and educational improvements are in place and is functioning well.

III. Overview

* To protect personal information and ensure fair evaluation, each external evaluation committee member is indicated anonymously by assignment of a letter of the alphabet.

1. Notably exceptional aspects are as follows.

Member A:

The entrance exams for students are conducted in a very careful and attentive manner. The program also accepts outstanding foreign students, as well as applicants who have medical licenses and dental qualifications, and deserve high appraisal for the positive results that the program has demonstrated.

As for the educational contents of the program, they can be commended for having implemented measures to improve each of the many issues that had been pointed out at the previous evaluation that was made by an outside evaluator.

The program has a good educational environment, such as hosting daily general reviews and debates during short-term fieldwork, retreats, and interactive seminars. Their short-term fieldworks and international symposiums attract participation by students from both in and outside of the country, for which the program can be highly commended.

Member B:

The program has implemented unique educational methods to enhance studies designed to encourage problem-solving abilities, and have steadily improved the quality of their education, for the purpose of nurturing global leaders. There is also a well-established structure for the management and operation of the entire program, and offers a graduate school education that can be highly rated at an international level.

Member C:

Diverse disciplinary fields have been integrated across various faculties for the Radiation Disaster Recovery Studies. Also, an educational program has been established that serves the objective of nurturing human resources that can contribute toward disaster recovery, centered on the area of specialty of each student. The program also offers broad financial assistance programs for students, and a well-developed study environment/facilities, thus steadily advancing their objective of “nurturing students who can exercise leadership at a global level.”

Member D:

The Phoenix program, supported by its leadership, has gone through an excellent transformation over the years to a much stronger program and significant improvements have occurred. The program is well on its way to achieving an ever greater reputation. The holistic approach to the issues and the overlap in knowledge and exposure yields well rounded students. Observation of the students when they first enter the program versus when they are near the end shows the transformation of students to independent, analytical, knowledgeable , confident experts who

understand the true dimensions of what they are dealing with.

Member E:

The uniqueness of this program is what makes it exceptional -i.e. , there is no comparable PhD program which educates and trains students to manage the many aspects involved in mass casualty disasters, including technical , organizational , communications(including risk communication) ,politics and psycho-social factors.

Member F:

Due to the specific situation for the renewal of the agreement for the Phoenix programme, it would be quite valuable to establish or reinforce the commitments with international organisations in the perspective of providing input on preparedness for emergency and recovery situation. Those commitments could increase the utility of the Phoenix programme worldwide and call for support for the future.

Member G:

- The program management team of the Phoenix Leader Education program is 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 recent graduates of the program have entered into the dedicated career field and is an endorsement of excellent training outcome of the program.

- In anticipation of the conclusion of funding support of the Phoenix program from the Japan Ministry of Education, Culture, Sports, Science and Technology (MEXT), the program leadership has created a new partnership as the Program for Institutional, Inter-sectional Collaboration on innovative Doctoral Education, iCODE, a provisional title, as a new mechanism to continue the mission of Phoenix program in the next funding cycle.

2. Aspects requiring improvement are as follows.

Member A:

After submitting the Radiation Disaster Recovery Studies Report, are they requiring that the contents of the report be prepared as a paper and submitted to an academic journal that undergoes peer review? Since I don't believe that there are any academic journals specializing in the field of Radiation Disaster Recovery Studies, I think it would be fine if the paper were submitted to an academic journal in a related field. I mention this because I believe many of the universities require that the doctoral thesis be submitted to an academic journal that has peer review.

Member B:

Since there are ample educational efforts being provided to enhance the quality of the students as a leader, in the future, the program needs to give consideration toward further enhancing the level of the research conducted by each individual.

Member C:

In order to further enhance the benefits of internships, there is room for improvement to be made by the organization accepting the interns, and in the contents of the internships. It is meaningful to work on different issues at diverse internship sites, but it is necessary for students to have an understanding of the objectives of the internship, such as on what they need to learn during their internship, and be clear about the significance of studying outside of the university. Activities implemented at usual fieldwork generally tend to consist of looking at the actual recovery site from its perimeters. However, through internship at local governments and other organizations that are involved in disaster recovery, students are able to experience the actual state of recovery from the inside as one of the persons involved in actual efforts. The experience gained at a department responsible for disaster prevention, where they develop evacuation methods and other measures when a disaster occurs, may also be effective in enhancing one's career. It is also believed to be meaningful to work at nuclear power plants and other such sites to study the development of frameworks to prevent disasters from happening, and to learn about the importance of daily inspections as well as maintenance and management operations.

Member D:

1. Collate a list of target institutions for employment of graduates and collate requirements for jobs by institution after seeking feedback from these institutions. This includes listing of additional licensing or certification needs eg industry symposium participant suggested 2 categories of certification for surveyors.

2. Improve internship benefit to the students by planning in advance to ensure the presence of the interns at a time consistent with major training/ conferences and projects at the institution where they will intern.

Member E:

The program has improved remarkably over the past few years such that there are now no major deficiencies; but there is always a need for some additional education; and wherever the curriculum permits or leads to legal issues, I suggest including discussions and seminars on international law and domestic Japanese law.

I also think the students would benefit significantly, if they were allowed to attend/observe a large national or international nuclear power plant exercise.

Member F:

One of the key features of the Phoenix programme relies on its transdisciplinarity approach. Although the workshop with the presentations of all students provides a key opportunity for exchanging and learning on the different facets of the programme, it seems that most of the researches developed by the students are still mainly focused on one single discipline. Furthermore, the professors in charge of following the students do not have necessary in mind the transdisciplinary approach. This could be further improved in the future.

Member G :

- At a time of competing resource for research in many parts of the world, there is a lack of discussion of what would be a back-up plan should the iCODE program not selected for immediate funding by MEXT. What is the contingency plan for support of students already in the program.

- While social sciences such as ecology and religion are useful, the program must make sure that our graduates are proficient in radiological sciences, upfront and foremost, as they will be the front-line scientists in time of any radiological events. People expect them to know radiation biology and radiation physics in order to disseminate accurate information at a time of need in a professional manner.

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

Member B :

In formulating the future career of the student, it would be better if there were more measures that give specific assistance, based on the assumption of diverse possibilities.

Member C :

In order for graduates of this program to become active at a global level and be able to make great contributions to society, it is necessary for the value of the academic degree of this program to gain international recognition. In order to achieve this, we need continuity even after the end of assistance from the Ministry of Education, Culture, Sports, Science and Technology, and to establish a structure to give continuous support to graduates of this program (career options, provision of information, etc.).

Member D :

- a. Determine profile for the different tracks and consider validated vocational/ personality assessment test (SHL) for Entrance evaluation.
- b. Review the need for an international certification of this or other programs? Consider where the graduates would fall in the ILO listing?
- c. Determine financial targets and sources for funding of the program for the future: companies, grants etc.

Member E :

Please see suggestions in the above question (2).

Member F :

It is important to continue the development of fieldwork and connection with the life of inhabitants affected by Fukushima accident. This is clearly an added value for the students to develop their skills for engaging dialogue with local inhabitants and to have a better view of the human dimensions of the post-accident management. In this perspective, further considerations could be devoted to the development of radiological protection culture.

It would also be useful to reinforce the inclusion of Chernobyl and Post-accident frameworks developed in the world. Notably when the students start their researches it could be useful to mention the state of the art and to emphasize the main new development in comparison to what has been done after Chernobyl.

IV. Summary sheet of evaluation points

The Evaluation points and average points of each member (anonymous) are shown in the list.

The average overall score for all of the items increased from last year's score of 3.80 to 3.88 this year.

All evaluation scores for each criterion earned a total of 3.7 points or higher.

However, the score of Point 2-② (Criterion 2) was 3.43, which was lower than the average score.

Member		A	B	C	D	E	F	G	Average /Criterion
Criterion 1		4	4	4	4	4	4	4	4.00
Criterion 2	Point ①	4	4	4	4	3	4	4	3.86
	Point ②	4	4	3	3	4	3	3	3.43
	Overall evaluation	3	4	4	4	4	4	4	3.86
Criterion 3	Point ①	3	4	4	4	4	4	4	3.86
	Point ②	4	4	4	4	4	2	4	3.71
	Overall evaluation	4	4	4	4	4	4	4	4.00
Criterion 4	Point ①	4	4	4	3	3	4	4	3.71
	Point ②	4	4	4	3	4	4	4	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	3	4	4	4	4	4	4	3.86
	Point ③	4	4	4	4	4	4	4	4.00
	Point ④	4	4	4	4	3	4	4	3.86
	Point ⑤	4	4	4	4	4	4	4	4.00
	Point ⑥	4	3	4	4	4	4	4	3.86
	Point ⑦	4	4	4	4	3	4	4	3.86
	Overall evaluation	3	4	4	4	4	3	4	3.71
Criterion 6	Point ①	4	4	4	4	4	4	4	4.00
	Point ②	4	4	4	4	3	4	4	3.86
	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	4	4	4	4.00
	Point ③	4	3	4	4	4	3	4	3.71
	Overall evaluation	4	4	4	4	4	4	4	4.00
Criterion 8		4	4	4	4	4	4	4	4.00
Criterion 9		4	4	4	4	4	4	4	4.00
Average /Member		3.86	3.93	3.96	3.82	3.82	3.82	3.96	3.88

V. Issues Pointed out by the External Evaluation

Committee

On the four point evaluation scale, the average overall score for all of the items increased from last year's score of 3.80 to 3.88 this year. All evaluation scores for each criterion earned a total of 3.7 points or higher. In fact, for each discreet Point the majority of the evaluation scores were 3.7 or higher. These consistently high scores indicate clearly that the completeness of the program was very strongly evaluated. Moreover, this year's score for Point 5-① (Criterion 5) increased significantly from last year's score of 3.38 to 4.0 as a result of implementing multiple corrective measures.

However, the score of Point 2-② (Criterion 2) which was about the continuation of the program was 3.43, which was lower than the average score. Therefore, on this specific point issues need to be clarified and remedial measures need to be taken in order to address the comments made by the External Evaluation Committee members.

The following section summarizes the comments and issues on these Points and offers an Overview Evaluation.

1. Issues related to “Point2- ② : Does the Program have guidance and student-support systems appropriate for achieving its purpose?”, “Criterion 2: Implementation Structure”

[Evaluation Results]

The average score for Point2-② increased to 3.43 from last year's 3.25. It was highly evaluated that the program has signed memorandum of understandings (MOU) with institutes and universities and also set up a collaboration base for new financial arrangements. On the other hand, concerns were raised that alternative plans were unclear in the case of ongoing funding not being approved according to the proposed plan.

[Issues]

The issues are shown below ① - ④.

- ① To improve the international recognition of the value of an academic degree from this program.
- ② To organize a long term support structure (career path, place for exchanging information) for graduates.
- 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.
- ④ A contingency plan should be in place in case the funding for the new program is not immediately approved.

2. Issues Related to “Point5-①: 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?”, “Criterion 5: Contents and Means of Education”

[Evaluation Results]

The average score for Point5-① increased to 4.0 from last year’s score of 3.38. It was evaluated highly that the program has implemented multiple positive actions for each of the issues raised at last year’s external evaluation. On the other hand, there is still room for improvement according to the advice that was made by the External Evaluation Committee members.

[Issues]

The issues are shown below ① - ④.

- ① To provide students the opportunities to clearly understand for whom their work is being performed. This awareness is to be gained through educational experiences outside of the university that are based on one of the program’s stated purposes: To nurture leaders who promote radiation disaster recovery efforts. With internships students experience how companies and other organizations contribute to society through their products and services, regardless of the type of industry. Furthermore, students receive the educational benefit of being able to visualize a possible manner in which they can contribute to society through their area of expertise following graduation.
- ② To adopt more practical internship opportunities that will enhance the career options of the students (on site for disaster recovery, government offices responsible for disaster prevention, etc.).
- ③ To create opportunities for students to make presentations about their research results to the general public using language that can be understood by everyone.
- ④ To improve students’ ability to engage in dialogue with the local inhabitants affected by the Fukushima accident.

3. Issues Related to the Findings in the Overview Evaluation

[Evaluation Results]

The issues listed are based on “aspects requiring improvement” for the Overview Evaluation.

[Issues]

Overview 1:

To collate a list of target institutions that may offer positive opportunities for employment for program graduates. Once this list is compiled, identify the requirements for jobs at these institutions and make this available for current students. This would include a list of additional license or qualification requirements.

Overview 2:

To improve internship benefits for the students by coordinating in advance their participation at a time that coincides with any major training, conference and/or projects occurring at the institution where they will be interning.

Overview 3:

To plan discussions and seminars on both international and domestic law.

Overview 4:

The students should attend/observe a large national or international nuclear power plant exercise.

Overview 5:

To promote research with a transdisciplinary approach.

Conclusion

Having reached the final year as a Program for Leading Graduate Schools as accepted by MEXT, we recognize that the evaluation by the external evaluation committee indicated that our program has achieved our original aim. The only remaining concern raised by the committee members is the continuity of our program and how to maintain our current educational system structure following the next fiscal year. Despite this it is very encouraging to have proposals that look beyond the conventional plan for future development of the Phoenix Program that includes internship methods and international project planning. In order to effectively respond to expectations, we are eager to further develop our program not only to simply continue, but to become a hub of world safety and security here at Hiroshima University. Therefore, the contents of this report will be shared with all program members and decision-makers with the goal of making lasting and far-sighted improvements.

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