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A Comparison of the Regional Environmental Education Centers in Korea and Taiwan: Systems, Roles, and Practices

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Abstract

Based on the interviews with key members from the Gyeonggi-do Environmental Education Center (GEEC) in Korea and the Kao-Ping Environmental Education Regional Center (KPEERC) in Taiwan, this study compares their systems, roles, and practices. Korea has a national-regional-local EE center system and its EE Promotion Act supports the designation of EE centers while Taiwan's EE Act does not stipulate the establishment of EE centers. Setting up a database of EE organizations and creating an exchange platform for environmental educators are the most important achievements of GEEC and KPEERC, respectively. As for the roles of regional EE centers, the interviewees in both centers place more weight on "a supportive role for other organizations" than "an executive role to directly perform EE practices." The two centers face similar difficulties due to lacks of budget and manpower with EE expertise. The three-year contract-based operations may threaten stability or long-term planning of both centers. Nevertheless, they have similar achievements in initiating networks among EE partners and devising strategies to meet local EE needs. For future development, the GEEC members will put more effort in planning regional EE policies while KPEERC counterparts anticipate more active participation in regional sustainability.

Keywords: functional role, operation, regional environmental education center

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Introduction

The thought of this comparative study emerged after a few international exchange activities (i.e., the Annual Conference of Chinese Society for Environmental Education in November, 2015, and the Bi-annual Conference of Korean Society of Environmental Education in June, 2016), where Korean researchers and representatives from Korea's Gyeonggi-do Environmental Education Center (GEEC) and Taiwan's Kao-Ping Environmental Education Regional Center (KPEERC, former Southern Environmental Education regional Center during 2014-2016) joined together. At present, it has developed as an outcome of the environmental education academic collaboration of researchers and practitioners from Taiwan and Korea.

Regional environmental education centers (REEC) in both Taiwan and Korea are considered as pivotal institutions that promote environmental education (EE) in their service regions. After years of practices, it is necessary to have an overview on the organization of the systems of REECs and examine their roles and practices. When these are simultaneously viewed by an external peer organization, suggestive reflections could be generated. Except that Korea's Environmental Education Promotion Act was enacted three years earlier than the year (2011) Taiwan's Environmental Education Act was implemented, the two oriental countries share similar cultural and economic contexts in which EE is realized. We consider that this cultural and economic similarity sets the ground for a meaningful comparison in the practices of REECs between two countries as EE practitioners and policy makers of either country would find from a "referent" some points that are informative or supportive to their ideas about how REECs should function.

In North America the development of such centers as "nature (education) centers," "conservation (education) centers," and "environmental education centers" can be traced back to the founding of Fontenelle Forest in 1913 (Evans & Chipman-Evans, 2004) and similar centers developed in other countries as well. With the operations that best utilize, manage and integrate their human resource and facilities

in providing EE programs to school teachers, students, and the public, these centers contribute to the promotion of EE and are collectively termed “environmental learning (EL) centers” (Chou, 2011; Chou & Chiang, 2013; Chou & Lin, 2000). An EE center is defined as a facility providing field-based environmental teaching through which citizens have an out-of-school learning experience that increases their environmental sensitivity and responsibility (Minnesota Department of Natural Resource, 1992). This definition implies that EE center and EL center were to subsume each other in literature. The REECs in this study, to a certain extent, differ from these centers that have natural settings and facilities and mostly at a local or community level, though with some overlaps in services and functions between REECs and general EE/EL centers. Results of this study might be explanatory in differentiating EE centers at a regional level from conventional EE centers with respect to their roles and positioning.

In the context of this study, a role can be defined as "behavior referring to normative expectations associated with a position in a social system" (Allen & van de Vliert, 1984, p.3). What the members of an REEC should do for better regional EE is linked to the optimal functions of an REEC and is hence applicable for the functional role theory, which emphasizes the characteristic behaviors of individuals in social positions within a stable social system (Biddle, 1986). The functional analysis is apt in the case of organizations in which the members are assigned specific tasks (Biddle, 1979). The tasks that an REEC performs include both supportive/strategic and executive ones. Supportive/strategic tasks refer to providing guidance, suggestions, and resources to and building capacity of regional EE organizations and educators, while executive tasks involve directly implementing EE activities and programs for general public. The perceptions of the REEC staff about whether an EE center at a regional level should be relatively strategy- or implementation-oriented lend insights into the ideal roles of the REEC. Meanwhile, the roles and tasks of REECs have much relevance to the system in which they are founded and operating. The system is a framework depicting the distribution, types, and levels of EE centers and it could be

created by laws, regulations and administrative authorities or identified by researchers ex post facto. An overview on these systems in the two countries could broaden our knowledge about the context in which the two REECs are being institutionalized, building networks with partners, encountering obstacles and finding opportunities. Accordingly, the present study aims to compare the roles and practices of the two centers in their respective EE center systems by exploring the views of their key members on these issues (Figure 1).

For now, there has yet to be ample research on EE centers. EE centers might have been the sources of programs and environmental educators that are investigated but, as Medir, Heras and Geli (2014) noted, their internal operation mechanisms are rarely the focus of study. Examples of sporadic studies focusing on EE centers are investigations on such themes as the influences of Greek EE centers on local communities (Pitoska & Lazarides, 2013), Australian school principals' perceptions of the roles of EE centers (Ballantyne & Packer, 2006), views of directors of U.S. EE centers on a successful EE center (Erickson & Erickson, 2006), along with earlier works that examined the goals of and summarized successful guidelines for these centers in U.S. (Simmons, 1991; Wilson, 1993; Wilson & Martin, 1991). Still, it must be noted that the above investigated centers function as environmental learning centers rather than expertise centers at a regional level.

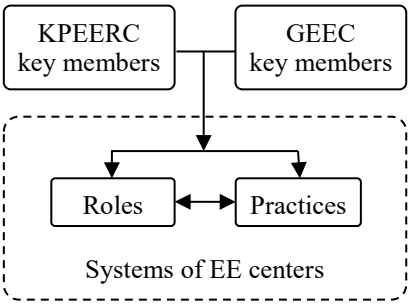

Figure 1. A research framework

The establishment of "national and regional centers for EE" was advocated in the conference of North American Association for Environmental Education (NAAEE) as early as in 1983 (Padalino, 1986). Similarly, Viloria (1991) suggested the necessity and strategy of a network of "regional centers of environmental education and training" for developing countries. When a regional level and a theme of organizational roles or operation of the EE centers are specified for the literature search, even scarcer relevant studies are found. These include a content analysis of the guiding documents of 23 EE centers in Spain (Medir et al., 2014) and an argumentation about the "change agent" role of NGO EE centers in Indonesia (Nomura, Hendarti, & Abe, 2003). From a perspective of regional EE development, the insufficiency of research in REEC points to an area that needs addressing.

Studies in REECs are just beginning as well in both Taiwan and Korea. So far a few studies focused on the REECs in Taiwan, concerning the roles and approaches of a university, as an REEC, participating in promoting regional EE with local governments (Liang, 2015), the collaboration with partner organizations of REECs (Hsu & Tang, 2017), and the operation and evaluation of an REEC (Chiang, 2016). The Korean studies include an identification of the models and roles of EE centers in a national-regional-local hierarchy (Cha et al., 2016), the investigation of operation factors and their relative importance of EE centers (Kim & Lee, 2016), and a study on the perception of teachers, professors, researchers, and NGO representatives about the designation of EE centers (Choi, Kim, Kum, & Cho, 2010). The topics studied in two countries seem similar and can be roughly divided into three categories of systems, roles, and practices. Nevertheless, some insightful implications for EE practitioners and policy makers could be drawn by probing into the differences in institutional context and member perspectives between the REECs in Taiwan and Korea.

Method

I. Instrumentation

By employing a written interview, this study collected data on the views of key members of the two centers regarding the systems, roles, and practices of the centers. A list of interview questions was developed through a process generated from an in person discussion of all authors (Figure 2). Initially, key members of both GEEC and KPEERC proposed, respectively, questions based on their experiences in and reflections about the roles and practices of their centers. We collected, translated these questions into English, and integrated similar ones before sharing them with key members of both centers for checks and revisions. The resultant final questions were adopted for interview with key members of both centers. A total of 23 questions are categorized into five domains (Table 1).

The authors explained these formal questions to the interviewees of the two centers respectively and asked them to respond according to their experiences and views via email in due time. The interviewees were independent from each other in responding these questions.

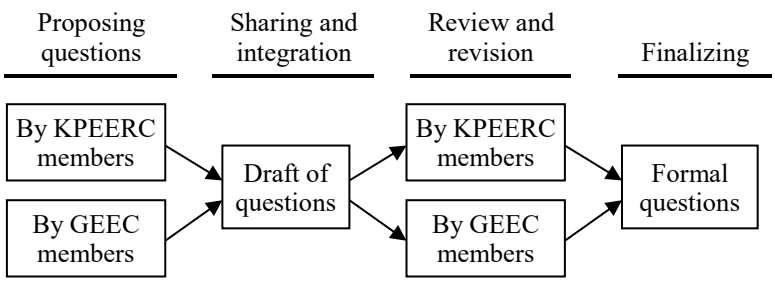

Figure 2. Development of the interview questions

Table 1 Interview questions for key members of both centers

Domain	Questions
Structure and operation (9 questions)	1).What is the structure of the EE center system in your country, and what are the roles of each center in the hierarchy (national-regional-local EE centers) ? 2).What are the purpose, roles, and directions of REECs in this system? 3).Is the distinction of the roles in EE center systems given by legal documents or authorities, or by agreement of members of EE center or request of regional environmental educators? 4).What is the institutional basis of the REECs (law, policy, projects and so on) ? 5).How are the REECs financially funded and what is the annual budget? 6).What are the operating organizations or institutions of REECs and what is the stability of the centers (periods and ways of contract)? 7).What are the academic majors or backgrounds of key members at the REECs? 8).What is the organizational structure of the REECs (structure for decision-making or implementation) ? 9).How do you (or your center) communicate on the concepts of EE when the understandings on EE of participants differ from yours or the participants may misunderstand EE?
Service and tasks (9 questions)	1).What do you think are the roles of the REECs among supports for others or direct implementation? If both are needed, what are the appropriate weights on them? 2).Who are the main targets of REECs (local government officers, school teachers and students, EE organizations, general public, military, business, and so on) ? 3).Which of the following is the area of service/task that is considered important as the role of the REECs? Prioritize: ① Research, investigation, and evaluation② Support for EE policies ③ Capacity building of environmental educators (professional leadership, education skill, knowledge and so on) ④ Support for EE practices (consulting and providing EE programs, materials, and information) ⑤ Partnership networking ⑥ Others 4).What is the significance of the following roles of your EE center in actual implementation? (Rate your perceived importance of

Table 1 (continued)

	implementation or the proportion of budget. Same options as the above question.) 5).How is this priority determined? (through internal or external discussions, based upon requests from local environmental educators, and so on) 6).One of the major roles of REECs is to strengthen partnerships. How can we build effective partnerships? (How do you think your REEC encourage environmental educators in the region for more active participation?) 7).How is the evaluation of service/tasks of your EE center conducted? 8).What are the results of internal and external evaluations of your center so far? 9).What do you think is the greatest achievement of your REEC so far?
Encouragement factors	1).What factors do you think are needed for better fulfilling roles of your REEC?
Obstacle factors	1).What do you think are obstacles in fulfilling roles of your REEC?
Meanings (3 questions)	1).What are the meanings of EE centers in the EE policies of your country? 2).What do you think REECs can do for better EE in each region? 3).Please suggest directions or roles of EE center for future development.

II. Respondents

The key members who were interviewed in August 2017 in both centers are equivalent in terms of the number and position, i.e. both are two fulltime executive staff. There are four interviewees in total comprising the purposive sample. Albeit the number of two is almost the number of fulltime staff of each center, their experiences in dealing with the practices of the center did qualify them as suitable interviewees. Two of the authors, who used to be at a managerial position of the two centers respectively, also responded to the interview questions.

III. Data analysis

The written responses of the interviewees went through a qualitative analysis in which we explore the findings reflecting the perspectives underlying the similarities and differences, approaches in practices, and directions for research. Instead of presenting the points of responses to all interview questions, we extracted from them a number of significant themes, namely: 1) The EE center systems in two countries; 2) Operation of regional EE centers; 3) Roles and institutional basis of EE centers; 4) Positioning between a supportive role and an executive role and priorities of tasks; 5) Strategies in building effective partnership with regional environmental educators; 6) Evaluation and achievements; 7) Encouragement and obstacle factors; 8) Strength, meanings, and future development. For these themes, in addition to summarizing some facts about the two REECs and reported ratings in diagrams and tables, we found out and discussed the ideas and viewpoints of the interviewees as well as implications for EE practices, policies, and research. Due to the limit in length, only a digest of the written responses integrated with our synthesis of important findings is presented here. Document analysis was also utilized in citing articles of relevant acts and ordinances of the two countries and requirements prescribed in the bidding documents for Taiwan's REECs to complement the discussion about the roles and institutionalization of REECs.

Results and Discussion

I. The EE center systems in two countries

The establishment of REECs in Taiwan began in 2014 and currently there are six across the island. In Korea, a national EE center was designated in 2012 and REECs began to operate since 2015. Presently, there are eight REECs out of 17 provinces or cities across Korea (Figure 3).

There are EE centers at different geographic levels in both Taiwan and Korea.

In Taiwan, no law or regulation specifies these EE centers at different levels altogether, which is fundamentally different from the Korean case where a three-leveled system of national, regional, and local EE centers is prescribed by one single act, the Environmental Education Promotion Act (Ministry of Government Legislation, 2017). Before the implementation of Taiwan's EE Act (Ministry of Justice, 2017) in 2011, there have been centers with the term "environmental education" in their titles, which are established by departments or bureaus of local governments, universities, or corporate, and at either county/city or local levels. Taiwan's Environmental Protection Administration (EPA) founded EE regional centers since 2014 according to the projects of establishing EE regional centers. There is no national EE center in Taiwan at present. The numbers, levels and roles of these centers in two countries are summarized in Figure 4.

II. Operation of regional EE centers

Though KPEERC and GEEC have different legal status, in practice, both centers are operated by organizations selected from competing applicants for a three-year operation project. All regional EE centers in Taiwan are operated by and located in universities. The KPEERC is operated by National Kaohsiung University of Science and Technology for the period of 2017-2019 (http://www.kpeerc.org.tw). The operation of GEEC is designated to a non-profit organization, Gyeonggi Environmental Preservation Association for 2015-2017 (http://www.ggeec.or.kr). Each regional center in Taiwan is funded by EPA with an annual budget of about 0.13 to 0.20 million USD. The annual budget of GEEC is about 0.35 million USD of which 50% is granted by Ministry of Environment and 50% by Gyeonggi Province. Both KPEERC and GEEC have a hierarchical structure of personnel with one top decision maker, project manager and coordinators/deputy director at the second level, and assistants/staff at the third level. The professional backgrounds of the personnel of both centers are similar. The members in the managerial positions all have a doctorate

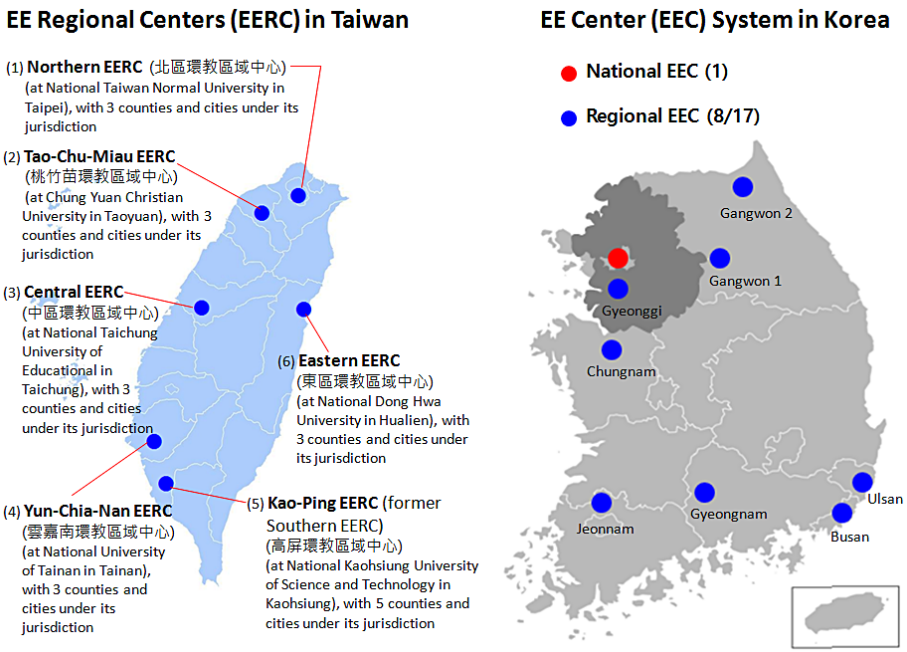

Figure 3. The REECs in Taiwan and Korea

degree and other staff holds a bachelor or master degree; the majors of all members range from environmental education, environmental engineering, forestry, to public affairs management.

III. Roles and institutional basis of EE centers

Learning from the project EECapacity of US Environmental Protection Agency (EECapacity, n.d.), Taiwan EPA assigned EE regional centers missions to achieve the five goals of EE academy leadership, capacity building, dissemination partnerships, technological support, and research and evaluation. The centers play a role in integrating EE resources and information as well as creating an interaction platform for environmental educators, EE facilities, venues, and organizations in the region.

From an ex post approach, we distinguish the roles of centers at other levels from those at a regional level (Figure 4). County/city centers serve as EE promoters, and implement EE projects of local governments, while local centers provide EE programs and organize EE activities in communities, schools, and recreational sites. In light of the administrative authorities these centers are subject to, they are categorized into social education and school education systems.

Korea's EE Promotion Act stipulates three functions for all levels of EE centers: development and distribution of teaching materials on EE, training and utilization of human resources specializied in EE, and support for EE provided by EE institutions. In practice, with respect to the weights among these functions, these centers vary with their levels (Figure 4). The national center is in charge of research and development and networking in EE. Regional centers focus on developing regional EE policies, coordinating/managing database building projects, and supporting local centers. A major role of local centers is to educate and train environmental educators. These differences of roles are consistent with the results of a recent Korean study (Cha et al., 2016).

For both countries, the distinction in these roles of EE centers is made by legal documents, rather than agreement of members of EE center or request of regional environmental educators. Nevertheless, the institutional bases of EE centers in two countries differ significantly. At the regional level, for instance, compared with KPEERC, the GEEC has a higher legal status as the EE Promotion Act prescribes that city mayors or provincial governors may designate a regional EE center and Gyeonggi Provincial Environmental Education Promotion and Support Ordinance (Ministry of Interior and Safety, 2017) authorizes the governor to establish an EE center. In Taiwan, the institutional or legal basis of KPEERC is a three-year EPA project (EPA, 2016). It is also the case for the other regional EE centers, with respective establishment projects applying to their regions.

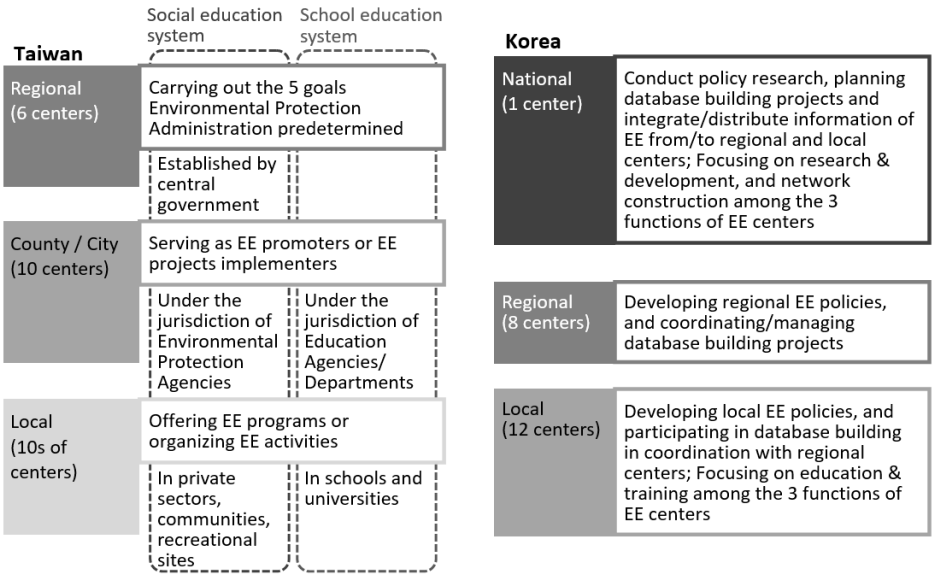

Figure 4. The EE center systems in Taiwan and Korea

From a functional perspective of role theory (Biddle, 1986), the role of an REEC is characterized by a specific set of tasks associated with its position in the social system. These tasks are conceived as what an REEC should do to be compatible with shared norms formed by citizen expectations and laws, as Biddle's (1979) argument that the concept of functional role concerns the legitimate problem. The legitimacy of an REEC depends on the extent to which it meets the norms. As the legitimacy increases, an organization receives greater recognition and supports from the society. Among different sources of legitimacy, Chen (1992) indicated that laws and regulations established by state provide most robust institutional legitimacy. The institutionalism argument gives thoughts on the consideration of setting the institutional basis of Taiwan's REECs by regularizing them in the EE Act.

IV. Positioning between a supportive role and an executive role and priorities of tasks

A regional EE center can play a supportive/strategic role by providing supports and suggestions for EE organizations and practitioners, and on the other hand, an executive role that directly implements EE programs and activities. The interviewees of both centers positioned their centers close to the supportive role. Coincidently, all three KPEERC and one GEEC interviewees gave an identical ratio of 70% supportive and 30% executive. On the premise that local EE centers are further expanded and the EE center system is strengthened, the GEEC director placed even more weights on the supportive role of regional EE center, giving a ratio of 80% to 20%.

Specifically, interviewees of two centers prioritized the tasks of EE regional center as Table 2. Most of them considered capacity building of environmental educators as the last priority since there are other institutes or local centers responsible for this task in both countries. As regards the first priority, the GEEC members agreed on research, investigation, and evaluation. In an established legal context of Korean EE center levels, GEEC could be positioned as a “think tank” by its members when there are subordinating local centers. The KPEERC members, however, held diverse views about the first priority, which was given to research, investigation, evaluation,

Table 2. Priorities of the tasks of a regional EE center

	KPEERC			GEEC		
Tasks	PC	A1	A2	D	AD	S
Research, investigation, and evaluation		1		1	1	1
Support for EE policies			5			
Capacity building of environmental educators	5	5		5	5	5
Support for EE practices			1			
Partnership networking	1					

Note: PC-project coordinator, A-assistant, D-director, AD-assistant director, S-staff

partnership networking, and support for EE practices. This is reflective of multiple tasks of equal importance at current stage in the region's EE in Taiwan.

When an EE center is placed at a regional level, its functions and positions might depart from the EE centers or environmental learning centers (ELC) described in literature, which are mostly nature-based and provide EE programs (e.g., Ballantyne & Packer, 2006; Erickson & Erickson, 2006; Medir et al., 2014), fulfilling an executive rather than strategic role. Indeed, Taiwan EPA's idea of establishing REECs is inspired by the Regional Centers for Expertise (RCE) on education for sustainable development that United Nations University launched and higher education institutions are the lead actors (Fadeeva, Payyappallimana, Tabucanon, & Chhokar, 2014). An expertise feature is hence inherent in the conceptual development of Taiwan's REECs. To sum up, we clarify the roles of an REEC and an ELC, actually with a considerable overlap between the two so far, in terms of the ideal, relative emphasis on the geographical levels, subjects, and missions as Table 3 shows.

V. Strategies in building effective partnership with regional environmental educators

One of the project coordinators of KPEERC proposed that it is necessary to form effective bonds between REEC and its partners, such as personal relationship, shared interests, and mutual complementarities. It is crucial to inform potential partners of what they can be benefited from this network. He suggested to show them how their needs can be satisfied by joining the network and what useful resource other partners can share with them. Regular and close contacts with the partners by visits to partner organizations and gatherings with the partners would be advantageous. An assistant of KPEERC thought that between partners and the center there should be a mutually beneficial relationship in which the attainable vision is visible for the partners, including sense of achievement, better homeland environment, and increased income.

Table 3. The positioning of Regional EE Centers (REEC) and environmental learning centers (ELC)

	REEC	ELC
Geographical level	A region covering counties and cities	A locality such as a school, community, or city
Subjects	Environmental educators from various organizations	Learners including general public and students
Missions	Networking, capacity building, and resource providing	EE Programming and education
Role	Supportive/Strategic	Executive/Implementation

The GEEC supports community EE groups, local network building projects, and gatherings of environmental educators and the public. The GEEC director indicated that networking with these multi-stakeholders is further strengthened through occasions such as workshops and consulting. She thought that the most effective ways include "*to communicate through councils, visit the groups, listen to their problems for consulting, reflect their voices, or form 'rapports' in sharing information and interests*." The assistant director considered it "*most important to find out what the stakeholders need and to carry out the projects that can realize their needs for continuous participation*." The quote below shows her awareness of the improved relationship after their efforts in building the network:

> *In the beginning days of our regional center, there were some local centers hesitating to join in joint projects proposed by our center. But, through the process of sharing and understanding the situation at the newly set up network of local centers and our regional center, I think that a close trust relationship is now established.* (The GEEC assistant director)

The creation and accumulation of social capital in the resultant network of partners will be a major benefit once REEC members successfully employ these

strategies. Social capital is defined as "the networks, norms and trust which constitute the resources required for individuals, workplaces, groups, organizations and communities to strive for sustainable futures" (Falk & Harrison, 1998, p.1).

Sometimes we encountered a situation that the REEC members and the participants have different perceptions of EE. The interviewees of both centers thought it could be resolved via more in-depth communication on many occasions. The words of an assistant of KPEERC illustrate a key point in doing so:

> *This problem needs to be addressed with a long-term approach. Through a long period of time of keeping company with participants and understanding the perception difference between each other, we can gradually reach consensus through mutual communications.* (A KPEERC assistant)

It takes much time and effort for REEC members to either build trust or improve communication between them and the potential partners, suggesting that the organizational stability of the REECs is necessary in this regard. Another issue that could draw the attentions of future researchers is the symbolic interactions between REEC members and the potential partners. For example, the language used and the expression of ideas in the interactions are influential for mutual understanding and trust. According to the symbolic interactionist perspective of role theory (Biddle, 1986), roles are also created during the social interaction between actors and through cognitive processes. It provides an alternative theoretical perspective in the analysis of the roles of REEC members.

VI. Evaluation and achievements

Both centers regularly evaluate their performance. With a standard questionnaire, the KPEERC assistants conduct a survey on occasions such as workshops, meetings, activities, and exhibitions. This data is analyzed and the results,

along with some qualitative data obtained from occasional talks with the participants and observations, are reported to the EPA biannually. In the first phase (2014-2016) of the EE regional center establishment project, the EPA does not require that all REECs use the same instrument to collect performance data. The KPEERC employed the "Sustainable Evaluation Framework" (Powell, Stern, & Ardoin, 2006) as a reference in dealing with the task of evaluation. It integrates multiple evaluation facets and covers both internal members and external consumers and stakeholders. Since 2017, Taiwan's EPA requires all REECs to be evaluated by external experts, a measure that GEEC has adopted earlier since its establishment in 2014. In order to obtain data useful to a larger audience, it is necessary to evaluate EE centers from the stance of objective outsiders (Schulze, 1991/2).

The GEEC's evaluation scheme is relatively systematic and formalized. A committee conducts an annual full-scale evaluation based on an evaluation framework. The committee consists of 14 steering committee members and 10 external members, who are EE specialists, school officials, and leaders of community EE organizations. Evaluation items contain:

(1) Operational evaluation: Goals, efficiency, expertise, budget, and feedback system.

(2) Service/task evaluation: The appropriateness of target, content and process, and accomplishment in each service/task area.

During the first phase of EE regional center establishment project when there were four REECs in Taiwan, the KPEERC was the only one that conducted a regular performance survey on all the five mandated tasks of REEC. On a 10-point scale, the average scores rated by its participants on these tasks are presented in Figure 5.

The annual evaluation scores of GEEC are 85.9 in 2015 and 89.7 in 2016, both equivalent to an "excellent" grade. The informal opinions from the Ministry of Environment and Gyeonggi Province were positive and both of them were willing to keep supports for GEEC with budgets. Results of the need assessment of local

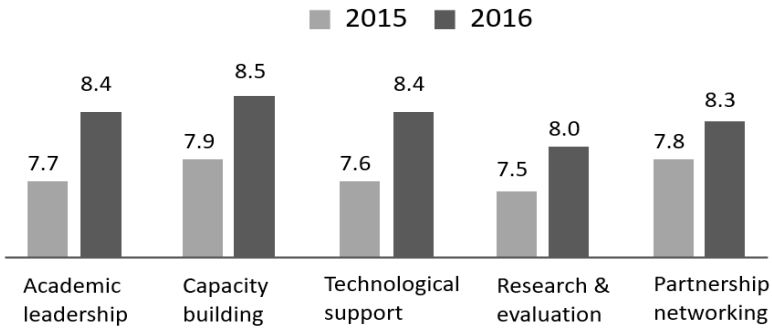

Figure 5. The performance evaluation of KPEERC (Fan, 2016)

environmental educators show that 61.4% of the respondents positively responded that the GEEC contributed to the promotion of regional EE in 2016, and 68.5% in 2017.

Regarding the greatest achievement of their centers, the project coordinator and one assistant of KPEERC thought that it could be the creation of a platform where EE educators and practitioners can meet each other, share their experiences, information, and resource, and thereby gradually connect with each other in the formation of a regional EE network. The GEEC director offered one tangible and one intangible achievements. The building of a database of EE information in the region is a major achievement that the other two interviewees of GEEC also indicated. The GEEC has collected information on the community EE organizations or institutions, EE facilities by cities and counties then shared the information through booklets and online. The database can be a basis on which policies and plans for EE in Gyeonggi region are established as well as an important resource for local environmental educators networking.

The intangible and valuable achievement is the formation of a trust-based network among GEEC, participants, and governmental departments. The director conceived that the GEEC has gained the trust of Gyeonggi Province and Provincial

Office of Education and been closely connected with them in many aspects. It has also been successful in networking with local community EE groups and a networking project for local environmental educators, enhancing the cooperation among local stakeholders to create further opportunities for EE. Creating an atmosphere among EE practitioners to acknowledge that they can contact the regional center when encountering difficulties in EE, this network may be the invisible but most important achievement.

VII. Encouragement and obstacle factors

Interviewees of both KPEERC and GEEC pointed out budget and human resource among the factors that assist regional EE centers in better fulfilling their roles. A view expressed by the project coordinator of KPEERC is that with more staff specialized in different tasks of the center, deeper relationships with partners can be cultivated and more quality activities can be provided. A survey shows that "good staff" is the most-mentioned factor among those that make a successful EE center (Erickson & Erickson, 2006). The GEEC director stressed that "*even the administrative agencies should have personnel who have a good understanding of EE and will therefore sustain their supports for EE centers*." In addition to the possession of EE expertise, a KPEERC assistant recognized that the staff should be "*willing to make long-term commitment to and have a passion for the career*."

In the evaluation framework that Powell et al. (2006) suggested for environmental education organizations, staff sharing a common vision of the organization's directions is necessary for participation in the evaluation process. It may be also the case for a fuller realization of the roles of a regional EE center when a KPEERC assistant identified core values and goals that the center members held in common as a facilitating factor in this regard. The project coordinator of KPEERC gave another human resource factor, i.e., the continual learning of key members about how EE can involve the emerging concepts such as circular economy, resilient cities,

and social enterprise. In addition, he suggested that they need to appreciate the values and skills of successful environmental educators in their dedication to grassroots EE.

Conversely, the interviewees experienced a number of situations that imposed impediments to the fulfilling of roles of their centers. A KPEERC assistant was concerned about "*too many routines of policy promotion required in the contract could weaken the substantial functions of REEC*." In relative to this concern about internal operation, the project coordinator noticed two external situations that could limit the extent to which the center could exert its influences. Firstly, local corporates have reservations about participating in EE events, limiting the extent to which EE ideas can be disseminated to their employees and customers. Secondly, laws and regulations have not yet created the incentives for both certified environmental educators and EE facilities/venues to invest in the EE industry. The strategies KPEERC devised for a regional EE market may not work well without a mature legal environment.

The GEEC director was anxious about the instability caused by the non-renewable three-year contract for operation. The operation of GEEC could be designated to a new organization every three years. Besides, some members of the governmental council often influence the budget without understanding the direction of EE center. She also worried about their preference for political interests over EE needs. The other staff also pointed out another problem that the GEEC budgets are often granted later than the time when school budgets must be secured. As previously introduced, the KPEERC also suffers from the same instability of contract-based operation. The GEEC director suggested to establish an independent institution or to have it commissioned directly by local government. In Taiwan's case, universities in the same region may become competitors for a new operation contract of the center rather than collaborators for regional EE. How an operating organization and its staff being selected and commissioned will be an important issue that needs comprehensive considerations.

VIII. Strength, meanings, and future development

In response to the question of what REECs can do for better regional EE, the KPEERC project coordinator and GEEC director proposed different strategies. More direct contacts with EE practitioners and educators in natural environment, communities, and corporate to collaborate with them in a variety of EE programs and activities, devising creative and innovative actions for EE, and using media to extend the influence of REEC are offered for KPEERC. In particular, the project coordinator gave an example of a useful publication that introduces EE principles with a collection of successful cases of EE programs and activities. The GEEC director took a stand of EE expertise by virtue of the administrative-centered implementation or inadequate reflection of the needs of environmental educators that she observed. She held that REECs can provide expertise in EE policy-making and implementation for administrative agencies/institutions to avoid these problems as well as directions of EE for organizations and individuals and opportunities to foster their competencies as environmental educators.

In the context of EE policy, the KPEERC project coordinator thought the REECs mean to facilitate the implementation of environmental policies by translating the policy contents into adjusted ways of life for local people. In his words, the REECs serve as a proxy of EPA to "market" environmental policies with educational, pluralistic, and local approaches, in non-formal settings. In Korea, despite the fundamental and explicit legal basis for EE centers with provisions on the establishment of EE centers and budget support in the EE Promotion Act and provincial ordinances, the GEEC director demanded amendment of the act and ordinances to a stronger version. Since EE centers can translate national environmental discourse into local contexts (Nomura et al., 2003), institutional supports in REECs should be necessary and worthwhile for governments.

As regards the directions or roles for future development, the project coordinator expected the REECs to be an advocator of regional sustainable development. This role

is significant for the purpose of the self-adjustment in coping with global environmental and social changes, and the increase in public acceptance of EE as an education for sustainable development instead of environmental protection only. He thought that the REECs would be more active and participative in important regional issues that mix environmental, social, and economic problems in order to fulfill this role. Medir et al. (2014) indicated that it is important to relate sustainability to the local contexts of EE centers, which can use socially participatory approaches and work for local problems. In an assistant's view, the centers are supposed to lead the profession of EE in the long run. For Korean REECs, as an independent "National Institute for Environmental Education" (tentative) will be established in the future and in charge of policy-making, research, planning of EE, the GEEC director believed the REECs will be responsible for policy planning, coordination and implementation of regional EE. Although it essentially remains in the direction that the EE Promotion Act sets for EE centers at the regional level, the GEEC key members call for more systematic ways and institutional supports to move forward.

Conclusions

A few similarities and differences between the REECs in Taiwan and Korea are illustrated in the present study. In the EE practices, the KPEERC and GEEC are approximate in the year of establishment, personnel structure, needs for human resource, and both confronted with the instability of operation contract and in the role position that they both expressed an inclination to a supportive role of the center. The members of the two centers adopted different strategies to involve partners in regional EE network but one common point they emphasized is the grasp of what the participants need. After three years of operation, KPEERC had set a foundation of a potential platform of EE resources for regional EE participants while GEEC completed a regional EE database and fostered a trust-based partner network.

The greatest difference between the two centers lies the institutional bases on

which they are established. This major difference could be associated with the different perceptions of two centers' key members about roles, practices, and meanings of REECs. Most notably is that Korea's EE Promotion Act sets up an EE center system with three levels of national, regional, and local. The GEEC is accordingly in a higher legal status than the KPEERC, which is project-based. Without a robust legal base, Taiwan's REECs on one hand reserve space for development of their optimal roles and on the other hand they are subject to unstable organizational conditions and persistence. This difference in the statutory system of EE center seems to influence the role expectations of these key members. The GEEC members agreed on a higher-order role position of a regional EE center as a think tank that contributes to the research and evaluation of regional EE policies. The KPEERC members, however, held diverse views on the functional roles of the center, giving the first priority to different tasks such as partnership networking, supporting EE policies, and research and evaluation. Nevertheless, for Korean REECs, the university-based operation along with the idea of regional sustainability that Taiwan's KPEERC features might have implications for innovation.

With the cases of the two centers in this study, we make a preliminary inquiry about a few aspects of an REEC and hope to inspire more mutual learning in both EE research and practices between countries in Eastern Asia. It is suggested that there should be more integration of the practices and research of EE centers. Policy recommendations to improve the effectiveness and advance the status of REECs need to be grounded in empirical research. Future studies are encouraged to investigate other aspects, such as EE programs, of REECs or conduct in-depth analysis on the above aspects with the application of EE theories.

Note: The views expressed in this article are those of the authors and do not necessarily reflect the views of the Environmental Protection Administration in Taiwan or the Ministry of Environment and Gyeonggi Province in Korea.

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韓國與臺灣環境教育區域中心之比較：體系、角色與實務

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摘要

根據對韓國京畿道環境教育中心 (Gyeonggi-do Environmental Education Center, GEEC) 與臺灣高屏區環境教育區域中心 (Kao-Ping Environmental Education Regional Center, KPEERC) 重要成員的訪談，本研究比較了其體系、角色與實務。韓國有一套包含國家-區域-地方的環教中心體系且其環教推廣法中訂有環教中心的指派程序，而臺灣的環教法並未規定環教中心的設置。建立環教組織的資料庫與創造環境教育者的交流平台分別是 GEEC 與 KPEERC 認為的最大成果。關於環教區域中心角色，兩中心受訪者皆較側重於是一種「對其他組織的支持性角色」勝過「直接實施環教實務的執行性角色」。兩中心皆面臨經費與環教專業人力不足的類似問題，每三年合約式的營運對兩中心的穩定性與長期規劃也可能都有影響。儘管如此，雙方在環教夥伴之間開始形成網絡與研擬能反映地方環教需求的策略等方面仍有相似的成果。關於未來發展，GEEC 成員建議能更致力於區域環教政策的規劃，KPEERC 成員則指出了更主動參與區域永續發展的方向。

關鍵字：環境教育區域中心、功能角色、營運