

Article

NGO Environmental Education Centers in Developing Countries: Role, Significance and Keys to Success, from a “Change Agent” Perspective

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Environmental education by non-governmental organizations (NGOs) is increasingly important in developing countries. This paper focuses on PPLH-Seloliman, an NGO environmental education centre in Indonesia, which shows us a good practice example of NGO environmental education. What is notable about this center is not only its contribution to the promotion of environmental education but also its financial self-sufficiency—most NGOs in developing countries are highly dependent on grants.

This paper considers PPLH-Seloliman from the perspective of what E. M. Rogers (1983, 1995) terms a “change agent”—that is, a marginal figure facilitating the flow of resources between a “resource system” (which could be information, knowledge, materials, the natural environment, funds, and others) and a “client system” (in this case, the target groups of the center’s programs and projects). In this role, with a grassroots approach and political independence, PPLH-Seloliman can meet public expectations, which in turn increases the support it receives and promotes environmental education.

PPLH-Seloliman has been a change agent between the following client systems and resource systems: (1) urban people and the natural environment; (2) local educators and national and international educational resources; (3) local people and national and international agencies; and (4) the classroom (formal education) and the field. This range of functions has helped PPLH’s financial self-sufficiency as well as promoting environmental education at local level.

In addition to highlighting some valuable lessons that can be learned from the example of PPLH-Seloliman, this article intends to demonstrate the usefulness of a change agent perspective in understanding the role, significance, and keys to success of NGO environmental education centers.

Keywords: Environmental education, NGO, change agent, international assistance.

1. Background and aim of this paper

Environmental education by non-governmental organizations (NGOs) is increasingly important in Asian developing countries as a result of various socio-political and economic changes in the region. For example, the overall growth in numbers of NGOs has led to a qualitative and quantitative increase in

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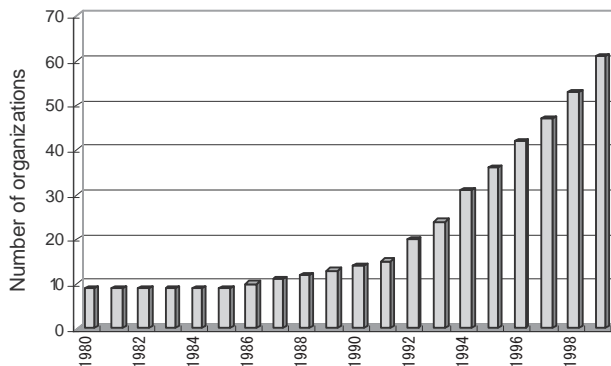
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NGO environmental education activities. Democratization has also provided NGOs with greater freedom to operate. Local governments, which have come to play an important role in providing formal education due to decentralization processes, have started to enhance their partnerships with non-governmental actors in order to complement their insufficient resources. In addition, the regional economic slump that started in the late 1990s constrained resources within formal education, which in turn increased the importance of non-state resources in promoting environmental education.

Indonesia has experienced all of these changes. The number of NGOs engaging in environmental education in Indonesia dramatically increased in the 1990s (see Figure 1).¹ Decentralization has increased the demand for NGOs to support local governments in providing environmental education not only to students and the public but also to government officials and educators, who lack adequate knowledge and experience (Soerjani 1999). In Indonesia, the success of pioneers such as PPLH-Seloliman² has inspired other NGOs to follow in their footsteps. As a result, NGOs' environmental education activities in Indonesia have developed significantly.



Source: Nomura and Abe (2001a)

Figure 1. Rising numbers of NGOs involved in environmental education in Indonesia

Insufficient studies have been undertaken to date on how to promote NGO environmental education activities, especially in developing countries, despite their importance (Nomura and Abe 2001a, 2001b). Moreover, few attempts have so far been made at analyzing NGO environmental education centers in order to identify policy implications for promoting such practices. Although some ink has been expended on introducing such centers and practical skills for managing them, the usefulness of these materials is limited. Many documents relating to individual environmental education centers are written by the centers' staff, from a subjective viewpoint and for the purpose of promoting the center. Although these materials are significant, Schulze (1991/2) argues that there is a need to evaluate environmental

1 Figure 1 shows the annual increase in new members of Jaringan Pendidikan Lingkungan, the nation-wide NGO environmental education network in Indonesia, since its founding.

2 Pusat Pendidikan Lingkungan Hidup (which literally means "environmental education center") is the name of an environmental NGO. Seloliman is the name of the site in East Java where PPLH's original center is located. PPLH has since established several other environmental education centers in the other regions of Indonesia, and each center has a considerable degree of autonomy. For the sake of brevity, in this paper the term "PPLH" refers to PPLH-Seloliman specifically, unless otherwise indicated.

education centers from the stance of objective outsider in order to document the experiences in a way that is useful to a larger audience. In addition, most documentation in this area has been based on cases in developed countries (for example, Schulze 1991/2, Wilson and Martin 1991). Considering the great needs in developing countries in Asia, it is crucial to develop locally appropriate policies to facilitate the establishment and development of NGO environmental education centers, such as provision of necessary resources and practical guidelines .

This paper aims to make a contribution to the development of such policies by identifying policy implications from an analysis of a best practice in the field of NGO environmental education centers in Indonesia, PPLH. This paper seeks to identify PPLH's role and significance, as well as the constraints it has encountered and keys to its success on both educational and management sides, which should help in formulation of policies to support similar activities. It is hoped that the paper will be informative for NGO staff as well as policy-makers. From an academic perspective, this paper tries to break new ground by employing a "change agent" perspective³ to analyze an NGO environmental education center. Considering the lack of frameworks for analyzing such centers, especially NGO-run centers in developing countries, it is hoped that this attempt will also make a valuable academic contribution.

What makes PPLH worth studying is not only its contribution to the promotion of environmental education, but also its financial self-sufficiency; this makes PPLH unusual among NGOs, who generally are highly dependent on funding agencies. Such dependency often obliges the NGO to follow the funding agency's policies, which may be inconsistent with local needs. Also, it makes it difficult for the NGO to make long-term plans. For funding agencies, financial self-sufficiency is highly desirable in a target NGO, as it suggests that activities and programs will be sustained after withdrawal of funding. Thus, studying PPLH's managerial achievements can provide useful information.

Data about PPLH were collected through informal and semi-structured interviews, focus group discussions, document analysis, questionnaire surveys, observation, and literature review. Schulze (1991/2) proposes that a case study methodology emphasizing such qualitative data collection techniques is appropriate for evaluating environmental education centers. In addition to observations through multiple visits to Seloliman over a decade, the authors collected data using these methods intensively during 2002–2003.

2. Framework

2.1. *The four functions of an NGO environmental education center*

Any environmental education center, whether NGO, private, or public sector, has three major functions. Firstly, in the words of Wilson and Martin (1991, 5), *environmental information* "about local, regional, national, and international issues is funnelled into the centres, organized, evaluated, synthesized, and disseminated," helping to enhance users' environmental knowledge and assisting environmental practices and activities. Secondly, environmental education centers can provide *opportunities for environmental education*, such as training programs, which enhance environmental

3 The change agent concept is described in section 3.

skills and knowledge, and facilities for workshops, meetings, and other educational activities, which strongly support local environmental efforts. This function of the environmental education center should be considered as its major *raison d'être*. Thirdly, environmental education centers can conduct *research* and other collaborative works with other institutions and local people. These could include research on regional environmental conditions; exploring locally suitable educational methods, materials, and curricula; helping institutions such as local schools to develop environmental education programs; as well as other related activities to promote environmental education at local level.

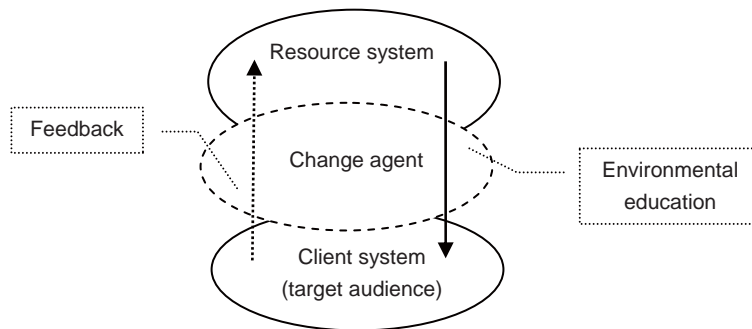
What, then, is specifically expected from an *NGO* environmental education centre? *NGO* environmental education centres have a fourth major function, which is related to their role as links between different geographical, sectoral, and topical areas. This results from the grassroots approach and political independence adopted by *NGOs* (Princen and Finger 1994). For example, being resources of environmental expertise located between the local community and other levels, and having diverse networks and contacts, they can “translate” environmental information from higher levels, such as national and international discourse, into local contexts, making it possible for local people to “think globally, act locally.” Also, educational materials and practices often have to be modified to suit them to local contexts. Seen from the opposite side, this translational function can make information about the local environment more accessible to people outside the locality. This function is particularly significant in the case of environmental education, as local or grassroots perspectives are an essential part of it. Although this function is interlinked with the other three functions, this is a comparative advantage of *NGO*-run environmental education centers.

The translational function can be explained clearly by reference to the concept of the “change agent,” which was notably proposed by E. M. Rogers in his theory of innovation diffusion (Rogers 1983, 1995). Although Rogers is mainly concerned with the overseas assistance sector, the concept is versatile and has been widely used. Rogers describes the role of the change agent as: to “provide a communication link between a resource system of some kind and a client system” and facilitate the flow of resources (which he terms “innovation”) from the former to the latter (Rogers 1995, 336). For the purposes of this paper, the “resource system” comprises information, knowledge, discussion, materials, nature, funds, and other resources for environmental education. The “client system” comprises the target audiences of the environmental education center, who could be local people and local educators (including *NGOs*), as well as people outside the locality who want to study the local environment.

Since there are, in Rogers’s words, “social and technical chasms” between resource and client systems—such as heterophily⁴ in technical competence, subcultural language differences, socio-economic status, and beliefs and attitudes—resource systems cannot be useful for client systems as they are. For example, there may be particular environmental problems in a rural village in Indonesia, and a resource system, such as experts in the United States, may hold some useful knowledge, skills, and information relevant for addressing the problems. However, it would be inefficient to provide environmental education directly from this resource system to the villagers, since the socio-cultural differences and the gaps in technical knowledge between the two could hinder the learning process.

4 Heterophily: the degree to which two individual entities that communicate are different in some attribute.

Many local people would experience difficulty in understanding such general information and applying it in their own context. As a result, what the client system learned through such environmental education activities would not be adopted, or genuinely take root, in the society. These “chasms” are often wider in developing countries, as is suggested extensively in the literature in the field of international assistance. However, a change agent can fill the gaps and make the resources useful for the clients (local people) by “translating” from the resource system for the client system, as the change agent is a “marginal figure with one foot in each of two worlds” and acts as a “bridge between two differing systems” (Rogers 1983, 315). NGOs have, as mentioned, a unique ability to link between the two.



Source: Modified from Rogers 1983, 314.

Figure 2. A change agent model for environmental education

One may say that the key to an NGO environmental education center’s success in fulfilling what is expected of it lies in how far it can act as such a marginal figure in many respects and between many resource and client systems. Accordingly, this analysis of PPLH focuses on examining if and how the center has played the role of marginal figure and how it has contributed to the promotion of environmental education. It would also explain its financial self-sufficiency, which is linked to its ability to meet the needs of many individuals and groups and thus attract more paying clients. The relationships between the four functions of an NGO environmental education center described above (information center, opportunity center, research center, and change agent) are illustrated in Figure 3.

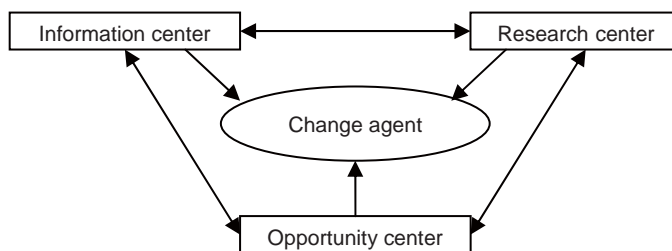


Figure 3. Four functions of an NGO environmental education center

2.2. Evaluation checklist

To establish that this case is worthwhile studying, it is necessary to demonstrate its significance in environmental education and managerial performance. In reviewing PPLH-Seloliman’s environmental education performance, this paper emphasizes outputs. It looks at quantitative growth in PPLH’s environmental education programs and projects, such as increase in numbers of activities and of participants.⁵ In addition, this paper employs qualitative methods (for example, interviews and focus group discussions) in assessing PPLH’s teaching methods and educational achievements (that is, what the audiences have learned and achieved through PPLH’s facilities and activities), which are difficult to assess in simply numerical terms.⁶ The criteria listed in Table 1 have been used to evaluate PPLH’s environmental education performance. Different criteria are linked with the four functions of the NGO environmental education center.⁷

For PPLH’s managerial performance, Table 2 was prepared using various materials for the evaluation of NGOs or environmental education activities, including existing checklists of this kind (especially NPO Hyouka ni Kansuru Kentou Inkai 2002, IGES 2001, Wilson and Martin 1991). The following sections examine the performance of PPLH according to the items in these two checklists.⁸

Table 1. Evaluation checklist I: Environmental education performance

Role	Indicator
Information/ research/ opportunity center	Quantitative
	E-1: Participants (numerical change).
	E-2: Programs and projects (numerical change).
	E-3: Educational materials and library stock (numerical change).
	E-4: Facilities (numerical change).
	E-5: Partnership with governments, businesses, and NGOs (numerical change).
	Qualitative
	E-6: Assessment from the viewpoints of the participants, etc.
E-7: Consistency with vision, mission, and strategies of the organization.	
E-8: Implementation of evaluation (program level).	
Change agent	E-9: Participation of local people (program level; numerical change).
	E-10: Compatibility of the programs with local needs; target orientation.
	E-11: Link with local traditions and characteristics (culture, etc.; program level).
	E-12: Comprehensive and international approach in its programs.

5 Although one can regard increases in funds and staff numbers as the results of success in educational programs, they are included under indicators of managerial performance in this paper.

6 Evaluating educational impact is significantly more difficult in the case of environmental education than for other activities, since environmental education is interdisciplinary in nature, embracing awareness, attitudes and participation as its objectives (see, for example, IGES 1998, 2001). The result is that the targets of environmental education are diverse and abstract, and are thus difficult to evaluate in a clear and quantitative manner.

7 The “change agent” indicators in the evaluation checklists (Tables 1 and 2) are based on what Rogers argues are criteria for success in the role of change agent (Rogers 1983, 1995).

8 When applying these checklists in other contexts, the following should be kept in mind: (1) numerical changes can be shown by chronological review (this may be illustrated by line graph/bar chart); (2) if a numerical target has been set previously, it can also be used to indicate the degree of achievement (e.g., using percentages); (3) non-numerical changes can be expressed descriptively. They can also be quantified and visualized by means of techniques such as semantic differential.

Table 2. Evaluation checklist II: Management performance

Area	Indicators	
Management (general)	M-1:	Articulation of vision, mission, strategies of the organization.
	M-2:	Decision-making system (degree of democratic decision-making).
	M-3:	Transparency (annual and financial reports, web site, newsletter, etc.).
	M-4:	Environmental impact of the center (energy and waste management, etc.).
Staff	M-5:	Number of full-time, part-time and volunteer staff (numerical change).
	M-6:	Number of locally recruited staff (full-time, part-time, and volunteers; numerical change).
	M-7:	Number of supporters (membership; numerical change).
	M-8:	Human resource development within the organization.
Finances	M-9:	Revenue and expenditure (numerical changes).
	M-10:	Dependence on program services; gifts, grants, and similar; membership fees; etc. (numerical change).
	M-11:	Expenditure on program services, management and general expenses (numerical changes).
Change agent	M-12:	Efforts to establish contacts with target audiences (including contacts with opinion leaders).
	M-13:	Homophily/empathy with local people; credibility in the eyes of local people.
	M-14:	Contribution to the local community (not including environmental education).
	M-15:	Relationships with other local NGOs.

3. Analysis

3.1. *Historical development of PPLH: environmental education activities*

It could be said that PPLH has its origin in Indonesia's first local environmental NGO, Yayasan Indonesia Hijau (YIH, or Green Indonesia Foundation), which was established in 1978 as a result of conservation activities in places such as Leuseur in Sumatra. YIH's main activity was to raise public environmental awareness. It targeted schoolchildren and used visual equipment and materials effectively, particularly slide shows. YIH's activities were favourably received by the public all over Indonesia, especially in the cities of Surabaya, Ujung Pandang, Palembang, and Bandung.

Despite its popularity, some YIH staff realized in the mid-1980s that it was not time- or cost-effective to visit individual schools and provide programs. Having recognized this inefficiency, one of the staff members, Suryo Wardhoyo Prawiroatmojo, planned the establishment of a center for intensive

environmental education activities, which students and teachers could visit to enjoy nature as well as to learn.⁹

Suryo's commitment to constructing the center, as well as his diverse network of contacts, attracted support from a variety of sources. For example, WWF-International contributed as much as 150 million rupiah for the center's construction.¹⁰ The British Embassy supported purchase of books for the library. Petra University in Surabaya provided traditional stoves. Hans Ulrich Furkhe, a German architect, voluntarily designed the center. His design is a mix of traditional Javanese and Balinese architectural styles, which gives the center an attractive and environmentally harmonious atmosphere. Foreign governments, including Germany's, also made contributions for the establishment of the center.

Suryo chose to locate the center in Seloliman because (1) the land was affordable with the contributions mentioned above; (2) it is easily accessible from populated areas; (3) it has rich natural and cultural surroundings.¹¹ After a two-year construction period, PPLH was officially opened on May 15, 1990.¹²

Since then, PPLH has expanded its environmental education activities. PPLH has constantly attracted a variety of *participants* to its programs, with an average of more than 10,000 participating annually, as shown in Figure 4.¹³ In addition, PPLH has provided a range of between five and 26 kinds of educational *programs* since its establishment, and these develop year by year. They cover a variety of topics, such as tropical rainforests, biological monitoring, botany, bird watching, energy, waste, and agricultural techniques. Besides such programs, PPLH also provides opportunities like workshops for local teachers; for example, in 1995 the centre held an international teachers' workshop to develop networking between schools at local, national, and international levels.¹⁴ To enhance relations with, and contribute to, local communities, PPLH developed Program Desa (Village Program) to share information, knowledge, and skills on organic farming, waste management, medicinal herbs, etc. Program Desa developed into a community development program in 1999.

PPLH has also produced *educational materials* and other learning media such as posters, booklets, brochures, books, magazines, and journals. In creating materials for local educational activities, PPLH

9 Finance was one of the factors that led Suryo to think about alternative ways to provide educational activities continuously. He said that the schools visited by YIH generally made minimal contributions to educational costs, putting the burden of covering the costs of activities onto YIH (Saidi, Abidin, and Faizah 2000, Chapter 3, p. 4). It could be said that PPLH was designed to achieve financial self-sufficiency from the very start.

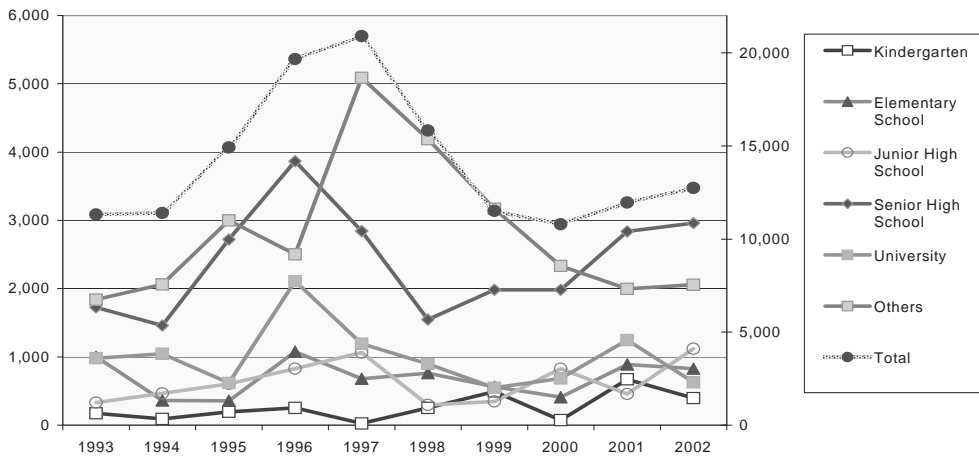
10 From the WWF contribution, 90 million rupiah was allocated for the purchase of land (3.7 ha.) and 50 million rupiah was allocated for the construction of a seminar room, restaurant and part of the PPLH office (see Saidi, Abidin, and Faizah 2000; *Tempo*, May 26, 1990; *Surabaya Post*, August 18, 1997). US\$1.00 had a value of about 1,850 rupiah in 1990; it is about 8,500 rupiah as of April 2003.

11 This list of reasons is based on related articles in the *Jakarta Post*, November 4, 1988; *Surabaya Post*, February 26, 1990; *Liberty Magazine*, August 1–15, 1992, pp. 46–48; and interviews by Hendarti with former PPLH staff member Syafruddin Ngulma Simeuleu (2003) and a builder who worked on construction of the PPLH facilities, Kardi.

12 Prince Bernhard of The Netherlands, the founding president of WWF-International, attended the opening ceremony along with representatives of several countries, including Germany, Denmark, Canada, Finland, Sweden, and New Zealand. This helped to expand PPLH's international network of contacts and increased support to the center. PPLH's growing international recognition is evidenced by the fact that PPLH received the International Global 500 Award from the United Nations in 1992 and Suryo received the Rolex Award for Enterprise in 1990. These awards motivated the PPLH staff and led to further enhancement of the organization's international connections.

13 Visitors to PPLH, including people who just visited to enjoy the facilities, amount to more than 80,000 people per year (according to Suroso, current director of PPLH-Seloliman, interviewed by the authors).

14 This workshop developed into the School Link program, which involved electronic networking between local, national, and international schools. This program terminated in 1999.



Source: PPLH reports, compiled by the authors.

Figure 4. Participants in PPLH programs, 1993–2002

has tried to incorporate up-to-date international information and materials to suit the local context, so that local educators can utilize a variety of effective methods. Also, PPLH often provides seminars for local educators to provide them with information and ideas on environmental education from around the world. The centre has built up a library of more than 20,000 books. Most visitors and participants in PPLH’s activities enjoy spending some time in this library, and it has helped to promote local educational activities.

PPLH has been equipped with various *facilities* since its establishment, such as overnight accommodation, meeting rooms, a restaurant, offices, a kitchen, a meeting/gathering field (*lapangan*), a garden, waste-processing units, a solar panel unit, and a micro-hydro power plant, as well as the library. Now around 100 people at a time can stay at the center and hold activities such as meetings. Besides physical capacity, the facilities are designed with their educational function in mind, as well as harmony with the natural surroundings. For example, the restaurant provides organic dishes made from vegetables and herbs grown in PPLH’s garden and on local farms, which can be used as a tool for teaching visitors about the environmental impacts of food production.

PPLH has maintained a variety of *partnerships* with many stakeholders over a long period to achieve its aims. It conducts seminars and workshops with both local and with central government bodies such as the Ministry of Environment. It also promotes its activities internationally through partnership with overseas businesses, including travel agents. This has contributed to increasing the numbers of international visitors—although their numbers fell after 1997 due to the economic crisis and political turbulence. PPLH has numerous collaborative activities with NGOs, such as holding workshops and trainings.

Besides the quantitative indicators, PPLH's achievements in environmental education were also assessed through a review of its media coverage and the outcomes of a questionnaire survey with participants in PPLH programs and interviews with participants and stakeholders.¹⁵

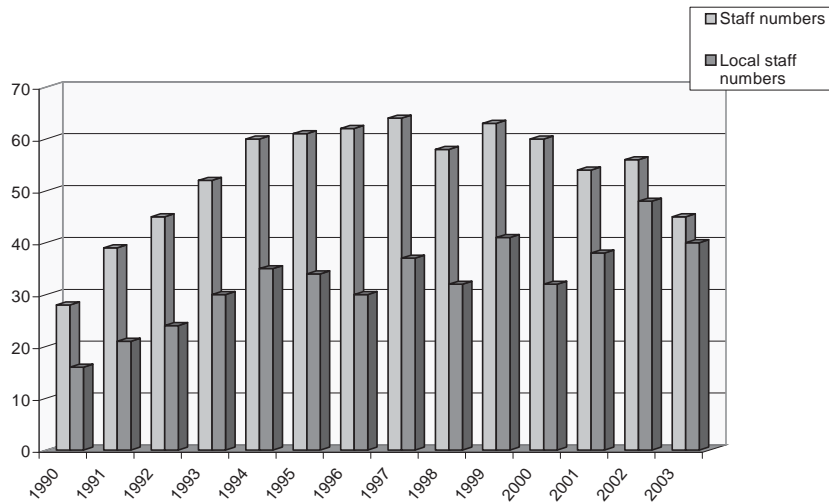
Most program participants surveyed felt that PPLH programs met their expectations in terms of subject matter and educational methods. Young participants in environmental education programs interviewed by the authors often reported that their visits to PPLH had helped them to deepen their understanding of the subjects at school. For example, one of them said that the composting system at PPLH had helped him to understand decomposition processes. Another said, "Now we understand how changes in natural surroundings influence our life." Many teachers interviewed said that their students became more active and motivated after a visit to PPLH. Some 98 percent of respondents to the questionnaire survey stated that they would like to revisit PPLH together with their family members and friends.

Besides participants from urban areas, local residents also attested that PPLH's activities had met their needs. Members of farmers' groups interviewed by the authors said that PPLH's ecological farming system program had benefited farmers with small landholdings. For example, they had been able to produce more rice than they used to by using more ecologically friendly methods. This motivated the local government of Mojokerto, one of the closest towns to PPLH, to draft local regulations on ecological farming systems; PPLH is helping to formulate these regulations at the request of the local government.

PPLH has also facilitated links between local environmental education activities and national and international resource systems. The School Link program,¹⁶ which tried to exchange ideas and experiences between local, national, and international schools (mainly in northern Europe), and the training program provided for local NGOs in collaboration with the Field Studies Council (UK), are examples.

15 The survey was conducted by PPLH and the authors between January and April 2003. Questionnaires were distributed to participants of PPLH programs, ranging from schoolteachers to NGO staff. They covered most of the participants who could easily be reached by post. There were 254 individual respondents. More information about the interviews can be found at the end of this paper.

16 See footnote 14.



Source: PPLH reports, compiled by the authors.

Figure 5. PPLH staff numbers, 1990–2003

The quality of these activities is subject to both internal and external evaluations. For the latter, PPLH has invited many stakeholders, including a Swiss funding agency PanEco, which conducts evaluations every six months. Many members of staff at PPLH state that having external as well as internal evaluations has helped to enhance staff motivation and capacity, as well as improving the quality of activities.

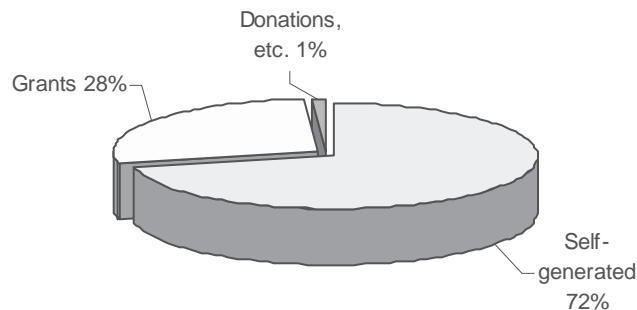
3.2. Management performance of PPLH

Reviewing the management performance of PPLH using the checklist in Table 2 can give us some idea of how it has survived and developed over more than a decade. As for the decision-making system at PPLH, the executive is fully responsible for PPLH's management and development, and has to provide organizational reports to the Board. Organizational decisions are taken at regular weekly and monthly meetings. Since its establishment, PPLH has had an average staff of more than 50. As shown in Figure 5, the center has increased its proportion of *local staff* as a part of community development. In 2003, 89 percent of staff were from the local community. This can increase homophily¹⁷ with the local community, which is considered to be important for the success of a change agent. PPLH has also provided various opportunities for *capacity building* of the staff, such as workshops and trainings on educational skills, managerial skills, and clerical skills (computer use, languages, etc). In particular, enhancing communication skills has contributed to PPLH's success as a change agent, as it has to accommodate various types of visitor, including urban people and overseas visitors.

As mentioned, one of the reasons why PPLH can be considered a good practice example of an NGO environmental education center is its high level of financial self-sufficiency. Figure 6 shows that between 1996 and 2001, more than 70 percent of PPLH's income came from its own activities, such as

¹⁷ Rogers uses *homophily* to mean the degree to which two individual entities that communicate are similar in a particular attribute.

education programs, the restaurant, and providing accommodation. Sales of educational materials, organic farming produce, and souvenirs also made a considerable financial contribution.¹⁸ As start-up costs normally account for the major part of project grants from funding agencies, it can safely be said that PPLH is able to manage most of its daily activities with its own revenues. This level of self-sufficiency (70 percent of expenditure between 1996 and 2001) should be highly regarded, as the economic slump and uncertain political situation in Indonesia reduced the numbers of participants and visitors to the center during this period. The pioneering nature of PPLH is illustrated by the fact that it has stuck to its belief that this charging participants is in fact the best way to carry out its educational activities continuously and consistently, even though it faced criticism from other NGOs in the early days that an NGO should not take money from the target of its educational activities. This policy makes PPLH a truly local NGO.¹⁹ It should be noted that while PPLH does charge participants in its programs, it also assists participants with limited financial resources by offering them a reduced participation fee. Some free programs have also been provided, especially for local communities.



Source: PPLH's financial reports, compiled by the authors.

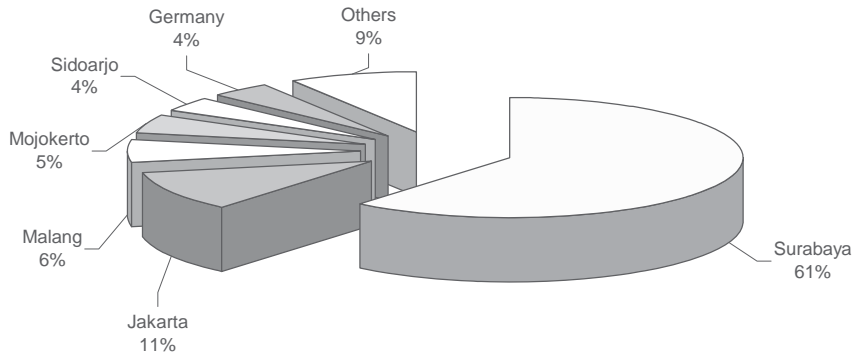
Figure 6. Sources of income for PPLH, 1996–2001

PPLH has also paid attention to the environmental impacts of its facilities. One hundred percent of PPLH's electricity is supplied by its micro-hydro power generating system. Organic waste is kept separate from other types of waste and processed through the center's composting system. Recyclable materials such as paper, PET, and steel are either passed on to recycling networks or used for income-generating activities by local people, such as handicraft production.

PPLH has tried to reach local people, groups, and institutions from the management side as well as through its role as a change agent. The increase in the proportion of local staff mentioned above is one part of this effort. Another is provision of programs such as Program Hari Minggu (Sunday Program), which is a regular meeting on Sundays for local people to learn about the environment as well as PPLH activities. PPLH also established a public relations division in 1995, which has used such media as printed bulletins and radio programs.

¹⁸ PPLH's overall annual income during this period amounted to between 464 million and 823 million rupiah.

¹⁹ In 1990, Suryo commented: "We can be self-reliant some day, and we will stop begging for financial assistance from abroad." (*Jakarta Post*, "East Java village boasts its first environment education centre," precise date unknown).



Source: PPLH reports, compiled by the authors.

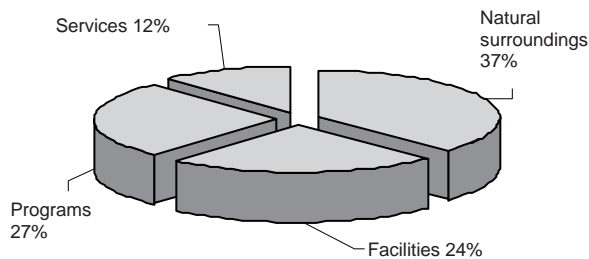
Figure 7. Place of residence of PPLH program participants

3.3. How PPLH has developed: keys to success

Why is PPLH so successful? The answer seems to confirm what was proposed in section 2: that the key to PPLH's success is how far it has managed to be a "change agent" in as many ways as possible. There are four main respects in which PPLH can be considered a marginal figure, which facilitates its role as a change agent; all of them seem to contribute to its success. They are outlined below.

Firstly, PPLH is a marginal figure positioned between the natural environment and urban people (in this case, the former is the resource system and the latter is the client system). This is largely responsible for so many people visiting and participating in PPLH's programs. Some 61 percent of PPLH's visitors are from Surabaya (see Figure 7), the second-largest city in Indonesia with a population of about 2.8 million. PPLH is one hour from Surabaya by car, on the slopes of the Penanggungan volcano, overlooking a dense canopy of tropical forest. It is on the margin of rich natural reserves but highly accessible for urban people. The center is a good entry point for urban people seeking to experience a wild environment, and has the added benefit of quality environmental education materials to help them learn about it. In fact, most of the participants interviewed stated that they had visited PPLH to enjoy and learn about the rich natural surroundings; figure 8 shows that for 37 percent of visitors and participants, the surroundings were the most impressive aspect of PPLH. This shows, for one thing, that PPLH has successfully played the role of change agent between urban and rural (natural) areas; for another, accessibility from the major cities is a key to success for a center of this kind.

PPLH has made various efforts to act as a change agent between urban and rural areas. It has promoted itself in Surabaya through local radio and newspapers. In addition, services at the center (for example, the restaurant and accommodation) are of high quality, which makes it more attractive for urban people to visit as they are often not used to rural lifestyles. Figure 8, showing which aspects of the center most impressed visitors, demonstrates how highly the quality of the facilities is valued.



Source: Questionnaire survey by authors.

Figure 8. Points that most impressed visitors to PPLH

Secondly, PPLH has been a change agent between local educators (client system) and national and international educational resources (resource system). As is often remarked, there is a very wide information gap between local educators in developing countries and national and international-level stakeholders. What is more, the sheer size of Indonesia has often been an impediment to disseminating information, knowledge, and skills for environmental education (see Nomura and Abe 2001a). With its national and international connections (which were greatly enhanced by Suryo's), PPLH has good access to national and international educational resources, including teaching methodologies and materials. It has collected, "translated," and disseminated these resources at local level, as has been noted.²⁰ Local educators and NGO staff have utilized PPLH's library and publications, participated in its workshops, and frequently consulted its staff. The examples of the international teachers' workshop and the School Link program represent PPLH's efforts to facilitate communication between local and international educators. Local educators and NGO staff interviewed by the authors considered PPLH to be a place to develop their curricula and programs, which shows their acknowledgement of PPLH's positive impacts on their environmental education activities. In addition, PPLH staff have often established new NGOs after leaving the center, which has promoted the local environmental education movement. Thus, PPLH has had significant achievements as a focal point of environmental education at the local level by being a change agent between local and national and international levels.

Thirdly, PPLH has certainly worked as a change agent helping national education authorities and other national and international entities, including funding and aid agencies, to reach local people. As environmental education is a relatively new area for aid and funding agencies, they often struggle to find the best way to support it at local level. If there is a reliable local-level focal point for environmental education, these agencies will not hesitate to input resources. Due to Suryo's excellent communication ability and his reputation for commitment to environmental efforts, various funding agencies and NGOs have provided support to and thorough PPLH. The scale of this support suggests that PPLH has satisfied the needs of funding and aid agencies. In fact, PPLH has conducted many environmental education-related activities with international resources in such a way that they have made a positive contribution

²⁰ Current and former staff of PPLH suggested that the center increasingly recognized the importance of modifying national and international educational resources, such as teaching methodologies and course content, to fit local needs. As Rogers argues, compatibility of programs with local needs is one of the key factors for the success of a change agent (Rogers 1995, 335–370).

to local community development; the promotion of ecological farming mentioned earlier is one good example.

Finally, through its programs and activities, PPLH has served as a change agent between the classroom and the field, with its emphasis on experiential learning. Making the most of its location and scale, PPLH's programs have drawn to a great extent on practical and action-oriented educational methods (*vis-à-vis* theoretical and knowledge-based approaches) such as guided interpretation and nature games. These approaches bring schoolchildren into closer contact with the natural environment, which develops their environmental sensibility. This kind of activity works in a complementary manner with formal education, which emphasizes lectures in the classroom. In relation to this point, one of the lecturers at the Institute for Technology Malang (ITN-Malang) suggested PPLH's holistic and interdisciplinary approach, which always deals with nature in relation to human behaviour, complements formal education, as it tends to study environmental problems only within the scope of each subject or discipline. Another interviewee, a teacher at a senior high school in Pringadi, suggested in the same context that what was particularly good about PPLH was its integration of a social science angle into its programs, as this had helped students to conceive the relations between different environmental problems. PPLH has also tried to make its programs accessible for schools by providing a range of options to meet different needs. It has established 20 entry points or topics (for example, waste, forests), and each group of participants (or school) can select one of these to suit where they are in their school curriculum.²¹ Such efforts have enhanced PPLH's function as change agent between the field and the classroom.

It can thus be said that PPLH's role as a change agent in four respects has attracted interest, cooperation, and support from many groups and individuals, as well as promoting environmental education at the local level. In fact, PPLH seems to have been designed deliberately to be a change agent. Suryo said that PPLH aimed to act as a bridge between urban people and local people, as well as to provide information to raise public environmental awareness.²² All of this suggests that NGO environmental education centers should be designed to function as change agents in as many ways as possible.

There are also lessons to be learned from the negative experiences of PPLH. One of them relates to the center's vulnerability to economic and environmental change. For example, the area where the center is located was hit by a landslide in December 2002. As a result, the number of visitors decreased. Since the center had already suffered from a drop-off in visitor numbers due to the long-lasting economic slump and political turbulence after 1997 (see Figure 4), this incident was financially damaging. Education needs to be provided continuously and should not be subject to interruption by such chance events. This experience suggests that NGO environmental education centers should try to increase collaborative activities with the formal education sector on a long-term (even multiple-year)

21 During interviews with the authors, many staff of PPLH, including the director, have emphasized flexibility as a key to establishing partnerships with the formal education sector.

22 See *Wanita Indonesia*, June 1992, 10; *Surabaya Post*, April 12, 1992. According to its own documents, PPLH was established based on some of the objectives of YIH, namely: to raise public environmental awareness; to support governments in their efforts to protect nature and the environment; and to support groups and individuals concerned with environmental issues.

contract basis, as the formal education sector is less vulnerable to economic change than business and individuals. This would minimize the impact of short-term factors on the management of the center.²³

Another problem PPLH has faced is discord with local communities. In its early days, local people referred to the center as a *rumah londo* (western house), implying that they considered it alien to the community.²⁴ Some locals assumed that it had received a lot of money from foreign agencies but felt that it did not make any economic contribution to their community, or that it was controlled by foreign agencies and did not act in the interests of local people. This was partly because the facilities were designed by a German architect and many funds came from abroad. The perception became even stronger as more and more international visitors and volunteers visited the center. In fact, some staff admit that there is, or has been, a negative social impact on local people due to the visits of urban or foreign visitors with different cultures and lifestyles, for example through their drinking habits (Indonesia is a Muslim country) or their use of high-tech electronic appliances. As PPLH paid insufficient attention in the beginning to such heterophily between resource system, change agent, and client system, the result was turning the aspirations of local people towards urban lifestyles. This became an impediment in conducting environmental education at local level, which should be sensitive to the local culture and environment.

Since the success of a change agent is positively related to factors such as “the extent of change agent effort in contacting clients” and the change agent’s “homophily with clients”²⁵ (Rogers 1995, 335–370), the answer to this kind of problem lies in improving relations with the local community. This is exactly what PPLH did. As mentioned, PPLH increased the number of staff it employed from the local community. In fact, the current director himself is a local. Establishing a community development division in 1998 illustrated PPLH’s determination to contribute to the local community. Setting up the public relations division was another example of this kind of effort. Free programs for local people such as the Sunday Program and the Village Program mentioned above have also changed the relationship. As a result of such efforts, the situation has improved. Local people no longer see the center as a “western house,” and instead regard it as a part of the community, promoting environmental awareness and knowledge as well as making other contributions.²⁶ Local leaders often consult with PPLH staff about environmental management. The chief of Trawas subdistrict, where PPLH is located, asserted that the existence of PPLH had played an important capacity-building role in the local community, especially increasing local skills and knowledge for sustainable development.²⁷

23 Most of the relationships between PPLH and schools are not based on long-term contracts.

24 Interviews by the authors with: a group of local villagers in Seloliman; a local women’s group; and PPLH staff.

25 The “client” can be understood in this context as the local community.

26 Factors that the interviewees from the local communities all mentioned as PPLH’s contribution to the community were: (1) job provision; (2) environmental impact (forest conservation, especially prevention of illegal logging); (3) electricity supply (now electricity for three hamlets of Seloliman village is provided from PPLH’s micro-hydro power generation system); (4) diffusion of skills and knowledge on not only environment but also acupuncture, medicinal plants, agriculture and recycling (from interviews by Hendarti with villagers and a women’s group in Seloliman, and villagers from Ngoro subdistrict).

27 Interview by the author (Hendarti) with the chief of Trawas subdistrict.

4. Conclusion

This paper has tried to analyze a good practice example of an NGO environmental education center in Indonesia, employing the perspective of Rogers's concept of change agents. It follows from what has been argued that what is particularly important for an NGO environmental education center is to act as a change agent in as many respects as possible. The comparative advantage of an NGO environmental education center lies in its grassroots approaches and political independence, which allow it to act more effectively as a change agent. Meeting what is expected by the public from an NGO environmental education center can bring about not only environmental education achievements but also financial self-sufficiency, which is a significant issue for NGO activities in developing countries.

PPLH acts as a change agent in relation to the following client and resource systems: (1) urban people and nature; (2) local educators and national and international educational resources; (3) local people and national and international agencies; and (4) the classroom (formal education) and the field. This has resulted in PPLH having a high level of financial self-sufficiency as well as boosting its contribution to the promotion of environmental education at local level. A policy implication is thus that the NGO environmental education center can play a significant role in promoting environmental education, and should be designed to act as a change agent in as many respects as possible. In addition, this paper has also shown that relations with (or contributions to) the local community are a significant factor for an NGO environmental education center to successfully play the role of change agent.

PPLH was established more than a decade ago. Its success has inspired many similar projects in Indonesia. One of the most recent, an NGO that has built an environmental education center in Bogor, suggests that this is a lower-cost model than typical ODA or other governmental projects. This NGO spent only around US\$50,000 on construction as its initial cost.²⁸ Considering the achievements of PPLH, the construction of new NGO environmental education centres seems a very cost-effective approach to promoting environmental education.

In theoretical terms, this paper has tried to apply Rogers's concept of the change agent to analysis of NGO environmental education centers in developing countries. This approach seems to have been successful as it has clarified the role, significance, and keys to success of an NGO environmental education center. The concept of the change agent fits well in the context of developing countries, as the social and technical "chasms" there are more significant. However, it does not mean that this approach cannot be used in the other contexts, considering the comparative advantages shared by NGOs as well as environmental education centers in both developed and developing countries. Further efforts need to be made to develop and refine this theoretical approach by applying it in different contexts. In turn, this will contribute to the promotion of environmental education.

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²⁸ 1 US\$ is about 8,500 Rupiah as of April 2003.

Interviews

- A lecturer at the Institute for Technology Malang, interviewed by Hendarti at PPLH-Seloliman, April 5, 2003.
- A teacher at a senior high school in Pringadi, interviewed by Hendarti at PPLH-Seloliman, February 16, 2003.
- A group of local villagers in four hamlets of Seloliman: Janjin, Biting, Sempur, and Bale Kambang, interviewed by Hendarti at Janjin, Biting, Sempur, and Bale Kambang on February 16 and 18, and April 4, 2003.
- Chief of Trawas subdistrict, interviewed by Hendarti in Trawas, February 17, 2003.
- Kardi (construction worker on PPLH-Seloliman center), interviewed by Hendarti at PPLH-Seloliman, February 16, 2003.
- Local villagers from Ngoro subdistrict, interviewed by Hendarti at PPLH-Seloliman, February 19, 2003.
- Suroso (director of PPLH-Seloliman), interviewed by the authors at PPLH-Seloliman, November 2, 2002.
- Local women's group in Oro-oro Jipang village, Ngoro subdistrict, interviewed by Hendarti at Jipang village, February 19, 2003.
- PPLH staff, interviewed by the authors at PPLH-Seloliman, February 16–22, 2003 and April 4–6, 2003.
- Syafruddin Ngulma Simeuleu (former PPLH-Seloliman staff member), interviewed by Hendarti at interviewee's house in Trawas subdistrict, February 16, 2003.

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