PAFERN: Advancing Philippine Agroforestry Education and Research via Networking

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ABSTRACT

Agroforestry education in the Philippines is already 30 years old. While there was interest among the state colleges and universities to offer various agroforestry education programs in the Philippines, these institutions were faced with a number of issues, development needs, and challenges that hindered program implementation.

This article highlights the significant contributions of the Philippine Agroforestry Education and Research Network (PAFERN) in strengthening the quality of agroforestry education in the Philippines. It argues that institutional capacity-building programs of PAFERN made a difference in the current state of agroforestry education in the Philippines. These include building staff capability, establishing learning resources and support facilities, developing institutional linkages, providing access to agroforestry information, and enhancing policy advocacy programs.

PAFERN's experiences in strengthening agroforestry education in the Philippines only prove that creative networking and implementation of need-driven capacity-building programs would help advance a specific field or area of concern. PAFERN should continue providing institutional capacity-building programs to sustain its relationships, resources, and relevance in a changing world.

INTRODUCTION

Agroforestry—the science, art, and practice that deals with the production, management, and utilization of woody perennials in combination with other agricultural crops, animals, aquatic and/or other resources—is an age-old practice in the Philippines and in other parts of the world. The long decades of agroforestry existence and continuous forest and environmental degradation gave way to the emergence of the science of agroforestry (Carandang and Landicho 2006). Offering various agroforestry education programs is anchored on the belief that agroforesters play an important role in the conservation and management of natural resources. Thus, state colleges and universities (SCUs) in the Philippines, which are generally strategically located in upland areas that are more or less in a state of deforestation and degradation, perceived the need to develop human resources that would perform this function.

The science of agroforestry started in the Philippines in 1976 when the Don Mariano Marcos Memorial State University (DMMMSU) in northern Philippines offered a four-year degree program leading to Bachelor of Science in Agroforestry (BSAF) (Villancio et al. 2003). Since then, different SCUs have offered various types of agroforestry programs. The 2001 study conducted by the Philippine Agroforestry Education and Research Network (PAFERN) Secretariat indicated that schools offering agroforestry programs continue to proliferate. At the time of the study, the country had 35 SCUs, Technical Education and Skills Development Authority (TESDA)-supervised and private schools that offer various agroforestry curricula.

Consistent with the proliferation of agroforestry schools is the increasing types of agroforestry curricula. At the time of the study, six programs were at the baccalaureate level, namely: BS Agriculture major in Agroforestry (BSA-AF), BS Forestry major in Agroforestry (BSF-AF), BS Agriculture major in Forestry (BSA-F), Bachelor in Agroforestry Technology (BAFT), and Bachelor in Agroforestry Entrepreneurship (BAFE). At the graduate level are Master of Science in Agroforestry and a two-year Certificate in Agroforestry for technicians.

A series of education studies conducted by the University of the Philippines Los Baños Institute of Agroforestry in 1995, 1998, and 2000 revealed a number of development issues and needs expressed by the higher education institutions offering agroforestry education programs. These include (1) the lack of minimum standards for the BSAF, (2) the outdated minimum standards for the BSA-AF and BSF-AF programs, (3) the lack of field facilities in agroforestry, (4) the lack of library materials in agroforestry, and (5) the limited staff development opportunities for agroforestry teachers (del Castillo 1998).

Landicho et al. (2002) elaborated the numerous development issues and needs being faced by institutions offering agroforestry education programs. While there seemed to be growth in agroforestry education in the Philippines, only a few schools were able to employ full-time agroforestry instructors. The insufficient number of agroforestry teaching staff has led to overloading and consequently, limited opportunities for staff development. There were also schools which expressed the need for a curriculum guide to develop, improve, and refine their own curricular programs. This is because the major reference in curriculum development is the outdated minimum standards for the BSA-AF and BSF-AF programs, which were formulated in 1980. On the other hand, although no minimum standards have been set for the BSAF program, a few institutions

have already offered it. Furthermore, indoor and outdoor physical facilities for lecture and laboratory classes were inadequate. A number of schools lacked basic references for the fundamental and major courses in agroforestry. Moreover, while majority of the agroforestry schools have maintained linkages with various institutions, there was an expressed need to expand these linkages for more improved delivery of instruction, research, and extension programs in agroforestry.

With these problems, del Castillo (1998) recommended the immediate identification of SCUs that would serve as national centers of excellence and provincial institutes for agriculture and fisheries that would sustain development initiatives in agroforestry education and research. He also emphasized the need for a thorough review of the existing guiding principles and minimum standards for the BSA-AF and BSF-AF degree programs, which would lead to the development of a participatory mechanism for the production of more appropriate curriculum guides for all agroforestry curricula that are formally sanctioned by the country's Commission on Higher Education (CHED). Moreover, he stressed the need for adequate allocations in the budgets of the national centers of excellence and provincial institutes for agriculture and fisheries to support the following: (1) hiring of full-time agroforestry instructors; (2) maintenance of staff development programs; (3) development of education and research initiatives, (4) construction of needed classrooms and laboratory facilities; (5) expansion of library acquisitions, including subscriptions to relevant technical journals; and (6) development of field laboratories and demonstration areas.

These recommendations were discussed and deliberated during the 1st National Workshop on Agroforestry Education held on 1-3 June 1998 at the University of the Philippines Los Baños (UPLB). The representatives from the SCUs, national government agencies, and the non-government organizations (NGOs) called for the establishment of a network or coalition that would help channel these issues and concerns to appropriate government agencies. This led to the formation of PAFERN as an informal coalition of agroforestry schools in the country. In 2000, during the National Workshop on Agroforestry Curriculum Development, the participants resolved to elevate PAFERN as a formal organization of agroforestry institutions in the country.

The 1998 Status and Needs Assessment in Agroforestry Education conducted in the Philippines, Lao PDR, Thailand, Indonesia, and Vietnam, and funded by the Swedish International Development Cooperation Agency (Sida), revealed a number of development issues and institutional needs in the field of agroforestry education. This finding was later validated when a Regional Workshop on Agroforestry Education, conducted in 1998, paved the way for the formal establishment of the Southeast Asian Network for Agroforestry Education (SEANAFE) in 1999.

These developments gave way to the formal organization of PAFERN in 2001.

About PAFERN

According to Williard and Creech (2006) a network is a social arrangement comprised of organizations or individuals, which is based on building relationships, sharing tasks, and working on mutual or joint activities. The very essence of a network or any partnership is a common vision and purpose.

PAFERN was organized with the vision of a well-coordinated and effective institutional delivery of agroforestry education, research, and extension activities that would address the various issues and challenges of promoting and

developing a distinct science and practice in the Philippines (PAFERN 2001a). The network's goal is to institutionalize strong links, within and among the member institutions, and other concerned organizations that are involved in advancing agroforestry development in the country.

Specifically, PAFERN aims to (1) maintain productive linkages among member institutions; (2) strengthen institutional capacities in agroforestry education, research, and extension; (3) promote sustained development of agroforestry as a distinct discipline and as a profession; (4) facilitate exchange of technical information materials among schools and various organizations; (5) facilitate the sharing of technical expertise through faculty, staff, and student exchange programs; and (6) generate and mobilize resources to support agroforestry education research and extension.

Consistent with its objectives, PAFERN has lined up priority activities to address the development issues and needs expressed by its member institutions. Among these priority activities are participatory curriculum development, institutional and staff capability-building programs, production and distribution of teaching materials in agroforestry, participatory research and extension, professionalization of agroforestry, faculty and staff exchange, resource generation, and information exchange.

Some formal networks can become more sustainable if they have an independent status or at least a stable institutional home (Williard and Creech 2006). PAFERN, for instance, has acquired its legal personality as a non-government organization based in the Philippines. It is composed of three principal bodies namely the General Assembly, the Board, and the Secretariat.

The General Assembly is composed of the official representatives of the member institutions. It elects and replaces the members of the Board, approves policies developed by the Board, approves work and financial plans proposed by the Board, ensures the active participation of the member institutions in all activities, amends the charter as the need arises, and decides on disciplinary measures for erring members.

The Board consists of one representative elected by the member institutions from each of the three island groups (Luzon, Visayas, Mindanao) and a Chairman elected by the General Assembly. The Board is the policy making body of the network and develops the work and financial plans of the network and oversees the implementation of activities that are being carried out by the Secretariat.

The Secretariat generally provides administrative and technical support to the Board and the General Assembly. The UPLB Institute of Agroforestry serves as PAFERN's National Secretariat.

PAFERN already has 35 member institutions. Of these, 34 are classified as SCUs or higher education institutions that are engaged in different agroforestry education programs. Only one is classified as a non-government organization also engaged in agroforestry development and promotion.

PAFERN draws funding support from Sida through SEANAFE in order to implement its national activities such as curriculum development, national training of teachers, collaborative agroforestry research, and teaching materials development. In addition, however, PAFERN also requires member-institutions to pay a membership fee of PHP 5000 and annual dues of PHP 2000. This is to ensure that PAFERN has enough finances to sustain its operations especially that Sida's support ended in 2010.

PAFERN also developed project proposals in order to augment its financial resources. In 2009, the Development Bank of the Philippines (DBP) tapped PAFERN to monitor and evaluate the implementation of their DBP Forest Program all over the Philippines. Besides providing additional resources to the network, the participation of qualified representatives of member institutions in the monitoring and evaluation team also enhanced members' research skills.

In the same year, the Asia-Pacific Network for Global Change Research also funded a one-year project aimed at promoting agroforestry for climate change mitigation and adaptation in Southeast Asia.

METHODOLOGY

The data in this article were generated from a survey, which assessed the effectiveness of PAFERN in strengthening the quality of agroforestry education in the Philippines. The study covered 31 member-SCUs that are geographically distributed in the Philippines. Of the 31 member institutions, 24 responded to the survey.

RESULTS AND DISCUSSION

Assessing PAFERN's Impact on Agroforestry Education in the Philippines

Establishing a "core vision" or "common concept" helps bind network members to generate cooperation, and to influence exchange of information between network members in different geographical, institutional, and disciplinary settings (Williard and Creech 2006). In this case, PAFERN was organized to address an issue which is of deep and urgent concern to a critical mass of agroforestry stakeholders, particularly in addressing various issues and concerns in agroforestry education—the lack of guiding principles and minimum standards in agroforestry curricular offerings, limited teaching staff qualified to teach agroforestry, lack of laboratory and field facilities for agroforestry, lack of agroforestry research and extension programs, limited access to agroforestry information, and limited partnerships.

These concerns not only called for channeling of issues to the concerned agencies such as CHED, but more importantly, these urgently called for institutional capacity-building programs. Capacity-building is viewed as a process by which technical support activities, including training, resource networking, and other forms of technical assistance, are being provided to an organization to acquire knowledge and experiences (California Wellness Program 2001).

The capacity-building programs of PAFERN revolved around (1) staff capability-building activities such as training and workshops, (2) improving learning and other support facilities, (3) enhancing policy advocacy, (4) building institutional linkages, and (5) providing access to agroforestry information. The following discussions are the results of an assessment study that was conducted in 2005 to find out if PAFERN had created changes and provided contributions to address the development issues and concerns in agroforestry education that have been expressed by the state colleges and universities as early as 1998.

Networking can be an important instrument for educational change because of its potential for capacity enhancement. Among the key objectives of networking is to share knowledge and skills to achieve the stage of development that would be difficult to reach through independent actions by an individual or

institution (Zoungrana et al. 2003). According to Kung'u and Temu (2003), universities, institutions, and research centers should cooperate with one another and build on each other's strengths to avoid duplication of efforts and resources.

The following section discusses in detail the results of PAFERN's capability-building programs.

PAFERN improved the capacity of teaching staff

It is evident in Table 1 that before PAFERN was established, there were few core agroforestry teachers. Even after their membership to PAFERN, the number of teaching staff remained within the range of 1-10 faculty members. A few institutions had 11-20 faculty members, yet these faculty members specialized either in forestry or agriculture. Majority of the respondents, however, mentioned increased opportunities for staff development after their membership to PAFERN. These staff development programs, in various forms, provided opportunities for enriching the knowledge and skills of the lecturers in the field of agroforestry, and thus, gave way to the increase in the number of lecturers specializing in agroforestry.

This finding was also validated by the results of the SEANAFE Impact Assessment conducted in the Philippines in 2006. Landicho (2006) concluded that the teaching capacity of PAFERN member institutions had increased over the last seven years. This is indicated by the following: (1) rise in the number of teaching staff with competencies in agroforestry, (2) increasing involvement of the agroforestry teaching staff in collaborative research and extension projects, (3) invitations as resource persons and lecturers in local training courses for technicians and farmers, and (4) sharing of institutional agroforestry experiences in conferences and seminars.

Table 2 also indicates that the staff capability-building programs of PAFERN were effective in the overall delivery of agroforestry education programs, as perceived by the respondent-institutions. The respondents believed that the participation of their teaching staff to the National Training of Agroforestry Teachers (NTAT) and the Training Course on Agroforestry Research Design and Management were effective in building technical capabilities in agroforestry.

Table 1. Staff development of agroforestry teaching staff among PAFERN members

Staff Development	Before PAFERN	After PAFERN
Field of specialization of agroforestry faculty members*		
Agriculture	16	17
Forestry	18	18
Agroforestry	10	15
Social sciences	7	8
Staff development opportunities for agroforestry teachers		
Enrollment in advanced degree programs	9	12
Participation in short training courses in agroforestry	13	20
Participation in conferences and seminars	20	21

Note: * = multiple response; N=24

Table 2. Effectiveness of PAFERN's staff capability-building programs

Activities	Very Effective	Effective	Not Effective	Weighted Score
Participation in the NTAT	51	10	0	2.77
Participation in seminars and conferences related to agroforestry education	48	12	0	2.73
Participation in the Training Course on Agroforestry Research Design and Management	33	18	0	2.55
Average				**2.68**

The NTAT course aimed to strengthen the technical capabilities of the teaching staff in agroforestry, while at the same time, improve their teaching skills (PAFERN 2001b; 2002). This course revolved around seven modules: Teaching Methods in Agroforestry; Agroforestry Concepts, Principles, Practices and Related Programs; Participatory Technology Development for Agroforestry; Application of Agroforestry Learning through Field Visits; Project Planning and Management; Advances in Agroforestry; and Action Planning.

The Training Course on Agroforestry Research Design and Management was organized to serve as a take-off point in building institutional capacities for collaborative agroforestry research. This training offered six modules: Basic Concepts of Agroforestry; Basic Principles of Agroforestry Research and Participatory Technology Development; Tools and Techniques in Agroforestry Appraisal, Diagnosis, and Design; Experimental Designs in Agroforestry; Statistical Analysis using SAS; and, Project Design and Proposal Preparation.

PAFERN enhanced learning and other support facilities

Table 3 shows the significant contributions of PAFERN in building the library resources of its member institutions. It can be noted that institutions' library resources were inadequate prior to their membership in PAFERN; however, learning resources became adequate after membership in the network.

Table 4 shows no significant difference in the establishment of on-campus agroforestry demonstration farms after membership to PAFERN. This is attributed to the policy issued by the then Ministry of Education and Culture (MEC) mandating SCUs offering BSA and BSF degrees major in Agroforestry to have established at least 100 hectares of forest reserve and 50 hectares of agricultural land for instruction and research purposes. Hence, even before their membership to PAFERN, these facilities were already in place, except for a few institutions that were constrained with a lack of manpower and land area. After their membership to PAFERN, these few institutions started collaborating with local organizations for the use of the latter's existing forest reserves and demonstration areas as laboratory and practicum sites of students.

SCUs in the Philippines have four-fold functions, namely: instruction, research, extension, and production. Research projects provide means of improving their curricula by integrating the lessons and experiences generated by research undertakings. In addition,

Table 3. Availability of library resources among the PAFERN member institutions

Library Resources	Before PAFERN					After PAFERN				
	VI	IA	AD	VA	Average	VI	IA	AD	VA	Average
Books	4	4	3	3	2.37	1	2	3	6	3.16
Journals	12	4	0	0	1.25	0	9	6	2	2.59
Newsletters	9	4	2	0	1.53	0	6	6	3	2.80
Other references (i.e. CD, videos, slide series)	1	8	1	0	2.00	0	4	4	2	2.80
Average rating					**1.78**					**2.83**

Note: VI = Very inadequate; IA = Inadequate; AD = Adequate; VA = Very adequate

Table 4. Field facilities and other support services that facilitate the delivery of agroforestry education programs of PAFERN member institutions

Field Facilities and Other Support Services*	Before PAFERN	After PAFERN	Difference
On-campus agroforestry demonstration farms	18	21	3
Off-campus agroforestry demonstration farms	13	18	5
On-farm agroforestry research programs	9	15	6
On-campus agroforestry research programs	9	19	10
Community-based extension programs	12	17	5
Training programs in agroforestry	11	18	7

Note: * multiple response

extension activities serve as an opportunity to learn in the field while sharing their expertise and reaching out to the communities within their service areas.

As presented in Table 5, there was a significant increase in the number of member institutions implementing agroforestry research after their membership in PAFERN. Initially, there were only nine institutions conducting agroforestry research because of the lack of staff and funds. The improvement in research involvement was made possible probably because the SCU administration may have already recognized the potentials of agroforestry, and thus, allocated research funds. Another strategy undertaken by the members was local networking or collaborating with local organizations, which have the technical and financial capacities to carry out agroforestry research.

The significant increase in the agroforestry extension program of the member institutions is also evident after their membership in PAFERN. The extension program revolved around providing training programs and other community-based extension projects. This may have been brought about by the availability of resources from the school administration itself, and from local external sources. There was a significant increase in the number of schools that have availed of financial support from local sources. This finding further validates the results of the Study on the Demand and Placement of Agroforestry Graduates in the

Philippines in 2000 (Del Castillo et al. 2001), which emphasized the increasing number of local institutions and development organizations engaged in agroforestry development and promotion in the Philippines.

Table 6 suggests that the publication of lecture syllabi and the distribution of recent agroforestry references are the most effective means of improving learning facilities. In its effort to standardize agroforestry teaching and learning, PAFERN produced a lecture syllabus for the "Introduction to Agroforestry" course to serve as a reference for agroforestry teachers (Villancio et al. 2005). This is in response to the concern expressed by the member institutions that they lack teaching materials and references in agroforestry for both teachers and students.

The formulation of guiding principles also became an effective priority activity of the network. As mentioned, among the development needs expressed by the higher education institutions were the formulation of minimum standards especially for the BSAF degree, and the updating of the minimum requirements for the BS-AF and BSF-AF degrees. Most of the schools offering these degrees have been using

Table 5. Status of institutional linkages of PAFERN members

Linkages	Before PAFERN	After PAFERN	Difference
Collaborating/Partner organizations			
NGOs	6	12	6
Government agencies	16	19	3
Local government units	12	18	6
People's or farmers' organizations	6	13	7
Private farms	6	13	7
Other agroforestry schools	3	6	3
Nature of institutional linkages*			
Technical assistance	16	20	4
Collaborator in research and extension	9	18	9
Source of financial support	4	14	10

Note: * multiple response

Table 6. Effectiveness of PAFERN's efforts in strengthening learning and other support facilities of members

Activities	Very Effective	Effective	Not Effective	Weighted Score
Publication and distribution of lecture syllabi	51	8	0	2.81
Distribution of recent references	48	10	0	2.76
Formulation of guiding principles	36	14	2	2.47
Establishment of demonstration farms	24	20	2	2.30
Coordination of practicum sessions	18	24	1	2.26
Faculty/Staff exchange	6	18	3	2.21
Establishment of collaborative agroforestry research and extension projects	15	24	2	2.16
Provision of undergraduate thesis support	12	24	2	2.11
Average				**2.38**

the minimum standard that is almost 20 years old, approved for adoption in 1981 by the then MEC. Meanwhile, despite the lack of minimum standards for the BSAF program, 11 schools were offering this program, necessitating an urgent need for the standards (Landicho et al. 2002). As such, PAFERN collaborated with the Taskforce on Agroforestry Education to fast-track the formulation and approval of the Policy, Standards, and Guidelines (PSG) for BSAF. The said PSG was approved by CHED for adoption and implementation effective school year 2007-2008.

PAFERN has also supported the establishment of agroforestry demonstration farms in four member institutions that did not have the facility. Demonstration farms were found to be effective in delivering agroforestry education programs. Besides serving as the learning laboratory, these also served as venues for research and extension activities of member institutions.

PAFERN enhanced policy advocacy programs

Zoungrana et al. (2003) claimed that networks have the potential to "collectivize the bargaining power and policy advocacy". As such, networks are most effective in pooling information, sharing it among the stakeholders, and mobilizing its members to adopt a common position on specific issues. Most importantly, they have pointed out that networks could "overcome social, political, cultural, linguistic, and organizational barriers to collaboration".

Since its establishment, PAFERN has been implementing policy advocacy activities. These included the conduct of the National Agroforestry Congress and the lobbying for the professionalization of agroforestry education in the Philippines. Table 7 shows that the respondent-institutions viewed the implementation of National Agroforestry Congresses as a very effective advocacy program in agroforestry. Aside from providing recent developments in agroforestry education, research and extension, the congresses also served as a venue to convene all the agroforestry stakeholders and discuss and address the issues and concerns confronting the field of agroforestry (PAFERN 2003).

The drafting of the Bill for the Professionalization of Agroforestry in the Philippines was found to be very effective. It calls for the creation of a licensure examination for agroforestry graduates. The proposed bill is a means of safeguarding the quality of agroforestry education in the Philippines, and providing better employment opportunities for the graduates.

Table 7. Effectiveness of PAFERN's policy advocacy program

Activities	Very Effective	Effective	Not Effective	Weighted Score
Conduct of agroforestry congress	48	10	0	2.76
Drafting of the Bill for the Professionalization of Agroforestry in the Philippines	45	12	0	2.71
Formulation of policies through resolutions	45	10	1	2.67
Lobbying with policy makers for the professionalization of agroforestry	27	20	1	2.40
Average				**2.56**

PAFERN widened the networks and linkages of its member institutions

Table 8 presents the significant expansion of member institutions' linkages after their membership in PAFERN. According to the respondent-institutions, the network has been highly helpful in establishing partnerships with various local and international organizations. At the national level, member institutions have initiated linkages with different SCUs, local government units, and NGOs. Hosting PAFERN's national activities, which called for the creation of multi-sectoral local committees and organizing field visits served as opportunities to build and strengthen linkages with local organizations.

Table 8 also shows that the PAFERN members have established their linkages primarily with the non-government organizations, people's organizations, and local government units. The local government units, are usually their sources of financial support in the implementation of their community-based projects. The NGOs and people's organizations, on the other hand, are tapped as partners or collaborators in the schools' research and extension programs.

Table 9 shows that the informal partnerships that have been established by the respondent-

Table 8. Status of institutional linkages of PAFERN members

Linkages	Before PAFERN	After PAFERN	Difference
Collaborating/Partner organizations			
NGOs	6	12	6
Government agencies	16	19	3
Local government units	12	18	6
People's organizations/farmers' organizations	6	13	7
Private farms	6	13	7
Other agroforestry schools	3	6	3
Nature of institutional linkages*			
Technical assistance	16	20	4
Collaborator in research and extension	9	18	9
Source of financial support	4	14	10

Note: * multiple response

Table 9. Effectiveness of PAFERN's efforts in building institutional linkages

STRATEGIES	Very Effective	Effective	Not Effective	Weighted Score
Informal partnership with national and local organizations	33	20	0	3.00
Formal partnership with an international organization	42	10	0	2.74
Formal partnership with national/local organizations	42	12	1	2.62
Informal partnership with an international organization	30	16	2	2.40
Average				**2.70**

institutions with the national and local organizations was the most effective strategy in building institutional linkages. Informal partnerships mean that both parties did not enter into memoranda of agreement or formal arrangements in carrying out their activities.

PAFERN improved member institutions' access to information

Table 10 shows that most of the member institutions had limited access to agroforestry information prior to their membership in the network. In some cases, no information was accessible to some members. However, after their membership in PAFERN, majority of these institutions have already gained access to agroforestry information through their attendance in PAFERN activities and participation in agroforestry training courses and seminars. Access to agroforestry information refers to the degree by which the member institutions are kept updated about recent developments in the field of agroforestry.

Table 11 shows that the regular and timely communications of the PAFERN Secretariat were effective in terms of gaining access to agroforestry information. Similarly, a more immediate and timely means of communication through regular electronic exchange of information was found more effective in accessing relevant agroforestry information compared to the PAFERN newsletter containing updates on network activities.

Table 10. Degree of access to agroforestry information by PAFERN members

Category	Before PAFERN				After PAFERN			
	NA	LA	AC	Average rating	NA	LA	AC	Average rating
Access to agroforestry information	5	14	3	**1.90**	0	4	19	**2.83**
Means of gaining agroforestry information								
Through the activities organized by PAFERN			0				24	
Attendance in agroforestry training courses			14				24	
Attendance in seminars/ conferences			17				24	
Printed materials			16				22	
Internet			7				19	
Linkage with other schools			4				16	

Note: NA = No access; LA = Limited access; AC = With enough access

Table 11. Effectiveness of PAFERN's initiatives in providing access to agroforestry information

STRATEGIES	Very Effective	Effective	Not Effective	Weighted Score
Regular and timely communications from the Secretariat	51	8	0	2.81
Regular exchange of information via electronic means	39	10	0	2.70
Bi-monthly circulation of PAFERN updates	39	14	2	2.50
Average				**2.63**

LESSONS AND INSIGHTS FROM AGROFORESTRY EDUCATION NETWORKING

Networks can collapse if some of the basic elements that hold them together are either ignored or overlooked. To sustain the network, there should be (1) interested stakeholders, (2) jointly identified networking goals, (3) clear strategies for achieving network goals, (4) good coordination capacity, (5) quality information, (6) good balance between formal and informal communication, and (7) resources (Boje and Wolfe 1989 as cited by Zoungrana et al. 2003).

In its eight years of existence, PAFERN has already distilled a number of lessons and insights from its networking initiatives. Foremost among these is the need for a common interest among the member institutions of the network in order to effectively carry out the national activities. Institutional commitment is vital in the operations and sustainability of the network. In addition, member institutions and the network as a whole, should not rely or depend solely on outside support. Instead, strategies that would encourage member institutions to share and provide counterpart resources to sustain the network operations should be created.

Because the members of the Board are geographically distributed and are replaced every two years, the National Secretariat serves as the nucleus of all network activities, which ensures that the planned activities are undertaken effectively. It is important that the institutional leadership is properly informed and aware about the national network and its activities to ensure support. Networking is a two-way process. There must be proactive information exchange between the member institutions and the Secretariat, and among the member institutions. The experiences of PAFERN indicate that network management is not the sole responsibility of the Secretariat or the Board Members, but rather a shared responsibility of the general membership.

CONCLUSION

This article suggests that PAFERN has provided significant contributions in addressing the development issues and needs in agroforestry education in the Philippines. Through its capacity building programs, (e.g., staff capability-building programs, development of learning resources and other support facilities, creation of institutional linkages, and provision of access to agroforestry information), the member institutions composed mainly of state colleges and universities, have improved their capacity to deliver agroforestry education programs. This paper, therefore, concludes that PAFERN has indeed made a difference in the state of agroforestry education in the Philippines.

PAFERN strengthened the agroforestry teaching staff by providing staff development opportunities through the national training of teachers, seminars, curriculum development workshops, and congresses. These activities not only built the technical capabilities of the teaching staff, but more importantly, served as venues for information exchange and building linkages. The network has likewise helped improve the library resources in agroforestry by providing a number of relevant references for use by the faculty members and students. The on-campus demonstration farms in agroforestry have likewise improved. Through agroforestry education networking, the agroforestry schools in the Philippines have established and even strengthened partnerships with other SCUs and local institutions. More importantly, PAFERN has served as a vehicle for channeling the concerns of agroforestry teachers, administrators and students to the relevant agencies and institutions. As PAFERN is the

only recognized formal organization working towards strengthening agroforestry education in the country, it should continue serving as the core organization in agroforestry development and promotion in the Philippines. It should continue providing institutional capacity-building programs to sustain its relationships, resources, and relevance in a changing world. Finally, PAFERN should proactively work towards promoting the potentials of agroforestry in climate change mitigation and adaptation in the Philippines, and in the region as well.

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