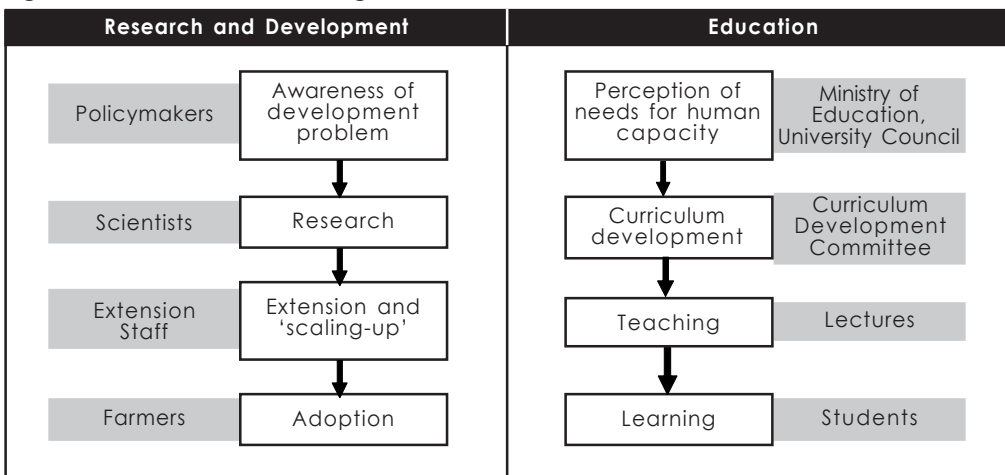# Participation and Networking for Better Agroforestry Education

Agriculture and forestry educational systems traditionally applied a top-down and didactic or teacher-centered approach to knowledge generation and transfer. Lecturers and university leaders spent years of their own education and career in such systems, which influence university structures, curricula and teaching approaches. This hierarchical model is illustrated in Figure 1.

Figure 1. A Model for Knowledge Generation and Transfer

Research and Development		Education	
Policymakers	Awareness of development problem	Perception of needs for human capacity	Ministry of Education, University Council
Scientists	Research	Curriculum development	Curriculum Development Committee
Extension Staff	Extension and 'scaling-up'	Teaching	Lectures
Farmers	Adoption	Learning	Students

Additional observations related to this hierarchical model are the following:

❑ The parallel route in research and development (R&D) deals with technology development and transfer, while in the educational system, this is the flow of knowledge and skills.

❑ The top-down line of command, with problem definition at the top, aims to create change at the lowest level--the receiver.

❑ The feedback loop is missing.

❑ The links between the R&D and educational systems are weak.

❑ The R&D chain has an institutional divide, where each step is the responsibility of a separate organization.

Agriculture R&D evolved towards participatory approaches and recognition of local knowledge after realizing the shortcomings of this model. Looking at the education process, pedagogic or learning theory suggests that adults:

❑ have different styles of learning
❑ are self-directed
❑ learn more effectively when they undergo and reflect on an experience, draw generalizations and apply what they have learned
❑ can learn from each other's experiences, and need interactive training methods (Taylor, 2003)

This learner-centered participatory approach in education is in stark contrast to the reality in many universities today. This paper discusses how the Southeast Asian Network for Agroforestry Education (SEANAFE) used a participatory approach in strengthening agroforestry education programs since 1999. The network has more than 70 member institutions in Indonesia, Lao PDR, Philippines, Thailand and Vietnam.

> The SEANAFE and the African Network for Agroforestry Education (ANAFE), a sister network with more than 130 members in 34 countries, are linked with the World Agroforestry Center (ICRAF). Both networks are important actors in the building of institutional capacity for agroforestry research, development and education in Southeast Asia and Africa using participatory approaches.

Why Does Agroforestry Require Participation?

Agroforestry is growing trees on farms. Farmers in the tropics use a range of agroforestry options as part of livelihood strategies. Their decision-making depends on a range of factors: biophysical and socio-economics.

The environmental impact of farming practices matters. These impacts are local, such as effect on soil fertility, or external, with bearing on the environment: watershed functions, biodiversity, climate change and landscape beauty.

Agroforestry goes beyond commodities like rice, maize or timber. It is also about how the landscape works and interacts with its inhabitants and other stakeholders, whether positive, negative or neutral. Scale also matters, as agroforestry covers trees and plots, the farm, watersheds, as well as the national, regional and global levels.

Agroforestry education, therefore, requires a broad spectrum of knowledge and skills from a range of sciences, including agriculture, forestry, sociology, economics, policy, etc. It is rare to find all these competencies within a faculty or even in an institution. Wider collaboration is essential in advancing agroforestry education. Networking educational institutions proved to be an efficient tool for collaboration among disciplines (Temu *et al.,* 2001).

Agroforestry Networks for Educational Change

Principles of Participatory Curriculum Development

SEANAFE realized that institutional collaboration within the Southeast Asia would benefit the development of agroforestry education programs. Curriculum development was a top priority and a logical starting point in all countries.

Given the complex and integrated nature of agroforestry science, the network opted for a participatory approach to curriculum development. The Participatory Curriculum Development (PCD) method had already proved successful in some institutions of the network, and was considered suitable for the regional network.

Stakeholders are involved in each of the interacting steps of the PCD cycle and stakeholder analysis is a key element of PCD. The analysis answers questions like:

> **Five Steps in the PCD Cycle Forming a Continuum Rather than a Linear Pattern**
>
> 1. Situation analysis - including training needs assessment
>
> 2. Aims - giving guidance and direction to the learning
>
> 3. Planning - objectives, content, methods, materials, time
>
> 4. Implementation - managing and delivering the program
>
> 5. Evaluation - assessment and monitoring

- ❑ Who are the stakeholders of the agroforestry education program?
- ❑ What are their importance and influence?
- ❑ What are their roles in the different steps of the PCD cycle?

A simple stakeholder analysis using cards quickly lists and ranks stakeholders and identifies their roles. The importance and influence matrix in Figure 2 takes the stakeholder analysis a step further by positioning stakeholders accordingly. For example, it highlights the need for paying special attention to stakeholders with high importance but low influence in the curriculum development process (Rogers and Taylor, 1998).

Figure 2. The Importance and Influence Matrix

	Low Influence	High Influence
High Importance		
Low Importance		

Participatory Curriculum Development for Agroforestry Education

SEANAFE initiated the regional review of agroforestry curricula through the development and production of a Guide to Learning Agroforestry (Rudebjer *et al.,* 2001). Although regional collaboration is essential in addressing issues of this magnitude, educational change takes place at the institutional level. Only the approval and effective implementation of a new curriculum creates an impact on the teaching and learning process. National adaptation of the guide was needed.

SEANAFE followed up the regional curriculum development work with activities at the national and institutional levels. Each level involved different sets of participants, as shown in Table 1. Lecturers who participated in the initial regional workshop provided the continuity in sharing their knowledge and skills about the PCD approach with colleagues at the national and institutional levels.

Table 1. Participants in the Curriculum Development Process

Level	Participants	Process	Products
Regional	❑ Agroforestry lecturers ❑ University leaders ❑ Employers ❑ Former students ❑ Non-Government Organizations ❑ World Agroforestry Center (ICRAF) ❑ Helvetas Social Forestry Support Program (SFSP), Vietnam	❑ Regional PCD workshop to develop curriculum framework ❑ Regional writing workshop to edit the draft	❑ Regional agroforestry curriculum guide
National	❑ As above, with national variations ❑ Policymakers ❑ Farmers' representatives (in some cases)	❑ National PCD workshop to validate and adapt the regional guide ❑ Team of teachers from different institutions writing the national curriculum guide	❑ National agroforestry curriculum frameworks in local language ❑ Recommendations to changes in national agroforestry curricula
Institutional	❑ Varied, depending on the institutional setting	❑ Development and review of agroforestry courses and programs	❑ Revised university courses and programs

Implementing the Education Change

As in the example on agroforestry curriculum development, SEANAFE worked at regional, national and institutional levels to support the change process. Similarly, collaboration strengthened other elements of the education process, especially training of trainers and developing teaching materials. Policy advocacy was also addressed.

This web of collaborations and partnerships resulted in a range of national and regional products and outcomes. Participation enhanced the quality of the resulting products, as shown in Table 2.

Table 2. Participatory Processes in Educational Change

Type of Participation	Participation Process	Outcome/Product
Among institutions in the region	❑ Regional collaboration among universities to address issues of regional significance ❑ Links with international organizations for resource mobilization and exchange of knowledge and information	❑ Network publications, like the regional Guide to Learning Agroforestry ❑ Access to global knowledge resources ❑ Resources mobilized from donors
Among institutions within a country	❑ National networking to define issues and constraints and collaborate towards their solutions ❑ Universities and colleges collaborate to adapt and translate curricula, train teachers and develop training materials ❑ Jointly approaching policymakers regarding agroforestry education issues	❑ A national mechanism for collaboration on agroforestry education ❑ The curriculum framework was adapted and translated in five countries ❑ Teachers are trained, relevant teaching materials available ❑ Policymakers sensitized
Among departments and faculties within an institution	❑ Several disciplines participate in the institutional curriculum development process ❑ Team-teaching across faculties/departments ❑ Joint development of teaching tools and methods	❑ More relevant and harmonized curricula ❑ The teaching and learning process enhanced by input from different departments ❑ Appropriate teaching materials
Between individuals, (teachers, students) farmers and communities	❑ Community representatives participate in PCD ❑ Teaching and learning on-farm/with farmers ❑ Multi-disciplinary research on farms ❑ Agroforestry demonstration plots established on farmers' fields	❑ Farmers' views and needs captured in curricula ❑ Local knowledge recognized in education programs ❑ Relevant research projects implemented ❑ Farmers' involvement in demonstration plots increased their relevance

Lessons from Networking and Participation in Agroforestry Education

The lessons learned from networking and participation in agroforestry education are highlighted below:

❑ There is a great interest among lecturers to move towards a more participatory curriculum development and learner-centered teaching and learning processes. Outside influence is important in stimulating such change, like collaboration with international organizations, development projects and other key stakeholders.
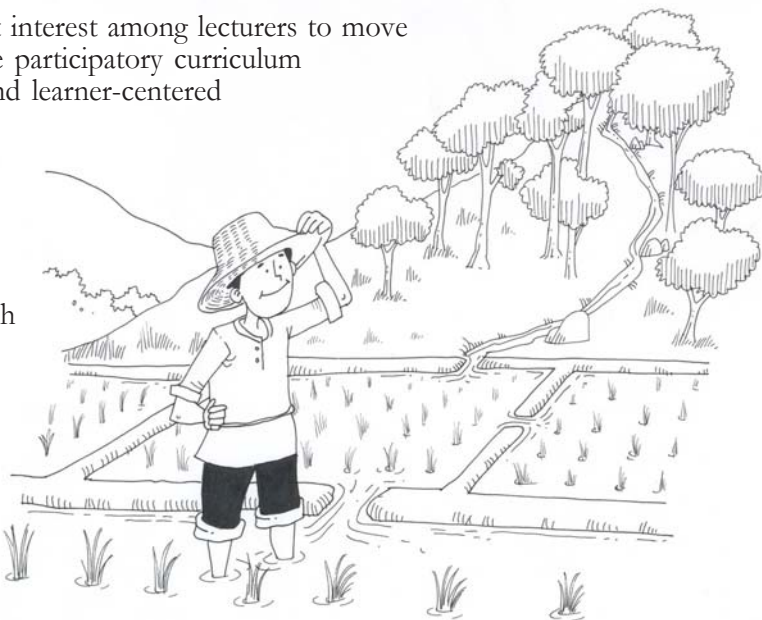
❑ Enthusiastic key persons - active lecturers or faculty leaders - are essential in implementing change within the institution. Although this is about institutional change, key individuals have to be identified and involved.

❑ Collaboration with farmers and communities were embedded in many ways in the PCD cycle. Sometimes, farmers participated in curriculum development workshops. More commonly, institutions conducted teaching and learning activities with farmers. One innovation was to establish agroforestry demonstration plots on farmers' fields, rather than on campus. Thesis research on farms was common in agroforestry education programs. Such activities can trigger increased participation with communities.

❑ A regional network can be very effective in catalyzing change. Together, institutions stand stronger than they would on their own. They can jointly conduct a situational analysis, identify priority issues, mobilize resources better and develop strategic solutions.

❑ National level networks are important in validating and adapting regional principles to the national context and language. This is especially the case given the great diversity among countries in Southeast Asia. National networks are better positioned to influence national policies.

❑ Within an institution, it is important to involve lecturers from different
   university units in developing and implementing agroforestry education. It
   is rare for one faculty to have the range of competencies required in
   learning agroforestry.

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