People, Land Management and Environmental Change (PLEC)
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Overview

The United Nations University Project on People, Land Management and Environmental Change (PLEC), homepage at http://www.unu.edu/env/plec, is a collaborative effort between scientists and small farmers from the developing world. It promotes biodiversity-friendly and profitable systems and techniques of natural resource management developed by local farmers, agroforesters, foresters, pastoralists, fishers and wildlife managers. The project operates through a global network among locally based Clusters, including 27 demonstration sites, established in Ghana, Guinea, Kenya, Tanzania, Uganda, China, Thailand, Papua New Guinea, Brazil, Peru, Mexico and Jamaica. These Clusters include over 200 scientists in more than 55 institutions, over 100 expert farmers, 10 farmers' associations/groups, and a few thousands of participating farmers. The demonstration sites are located in priority agroecosystems at the margins of forests, semi-arid regions, mountains and wetlands of globally significant biodiversity.

Objectives

The overarching goal of the project under UNEP/GEF support from 1998 to 2002 is to develop sustainable and participatory approaches to conservation, especially of biodiversity, within small farmers' agricultural systems. Participation is a strong and pervasive theme of all PLEC work. The specific objectives of the project are as follows:

I. To establish historical and baseline comparative information on agrodiversity and biodiversity at the landscape level in representative diverse regions;
II. To develop participatory and sustainable models of biodiversity management based on farmers' technologies and knowledge within agricultural systems at the community and landscape levels;
III. To recommend approaches and policies for sustainable agrodiversity management to key government decision makers, farmers, and field practitioners; and,
IV. To establish national and regional networks among participating institutions for capacity strengthening.

PLEC Concept of “Agrodiversity”

For thousands of years, farmers have constantly applied the adaptive management approaches in their utilization and cultivation of biodiversity for food production and livelihoods. The “agrodiversity” emphasizes farmers' resource management as a whole. It covers four elements, i.e. biophysical diversity, management diversity, agrobiodiversity and organizational diversity (see Table 1), as well as multiple interactions of these elements. PLEC deliberately dwells on those "sustainable adaptations by small farmers to varied environments under growing population pressure and other forms of stress...[and], principally through the high degree of structural, spatial and trophic, as well as species diversity that is involved" (Brookfield, 1995: 389).

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Table 1. Four elements of agrodiversity (Adapted from Stocking, 2002)²

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<thead>
<tr>
<th>Agrodiversity categories</th>
<th>Description</th>
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<tr>
<td>Biophysical diversity</td>
<td>The diversity of the natural environment including the intrinsic quality of the natural resource base that is used for production. It includes the natural resilience of the biophysical environment; soil characteristics, plant life, other biota. It takes in physical and chemical aspects of the soil, hydrology, climate, and the variability and variation in all these elements.</td>
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<tr>
<td>Management diversity</td>
<td>All methods of managing the land, water and biota for crop and livestock production, and the maintenance of soil fertility and structure. Included are biological, chemical and physical methods of management.</td>
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<tr>
<td>Agrobiodiversity</td>
<td>This is all species and varieties used by or useful to people, with a particular emphasis on crop, plant and animal combinations. It may include biota that are indirectly useful, and emphasizes the manner in which they are used to sustain or increase production, reduce risk and enhance conservation.</td>
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<tr>
<td>Organizational diversity</td>
<td>This is the diversity in the manner in which farms are operated, owned and managed, and the use of resource endowments from different sources. Explanatory elements include labor, household size, capital assets, reliance on off-farm employment, and so on.</td>
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PLEC Methods

PLEC seeks to document the value of “agrodiversity” as a basis for viable approaches toward conservation and enhancement of biological diversity in agricultural ecosystems, and improvement of rural livelihoods. Key components of the PLEC methodology are 1) Demonstration site, 2) Assessment of agrodiversity and its component, and 3) Promotion of agrodiversity through "Farmer learning from expert farmer". Details of the PLEC working guidelines and case studies on agrodiversity are introduced in three major publications, "Cultivating Biodiversity: the Understanding, Analysis and Use of Agrodiversity"³, "Handbook for the Field Assessment of Land Degradation"⁴, and "PLEC Agrodiversity Database Manual"⁵.

Recommendation and Future Plan

Over the last several years, the Project on People, Land Management and Environmental Change (PLEC) has successfully identified, evaluated, and promoted small farmers’ resource management systems that conserve key environmental processes, employ high levels of biodiversity as a tool for income generation, and help small farmers cope with changes in markets, climates and policies. While PLEC’s track record in this work has been successful, its impacts have thus far been largely limited to the twelve countries where PLEC “clusters” are located. Building upon the accumulated experiences of PLEC, in the next four-year phase PLEC Project as a whole will both upscale the activities and mainstream PLEC experiences and approaches.

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