

Enhancing community livelihoods through nature-based enterprises: the case of Matinyani women group, Kitui, Kenya. Lishindu Chiteva, R., Mayunzu, O., Wachira, N. (*Kenya Forestry Research Institute, Kenya; rchiteva@yahoo.com; omayunzu@gmail.com; normanwachira@yahoo.com*).

Nature-based enterprises (NBEs) are ventures that can be used to support biodiversity utilization, conservation, and equitable benefit sharing from derived resources. This paper highlights the potential of NBEs in enhancing community livelihoods in Kenya, with specific emphasis on Matinyani Enterprise in Kitui. In 2010, the 60-member group received both theoretical and hands-on training by Kenya Forestry Research Institute (KEFRI) in product development and setting up and registering an enterprise with the Ministry of Sports, Culture and Arts. The training included propagation, processing, and value addition of *Tamarindus indica* fruit for jam, juice, and wine. Frequent monitoring is done by KEFRI to ensure adherence to Kenya Bureau of Standards regulations and to maintain the quality of products. Evidence of the adoptability of the technologies and of improvements in group members' livelihood includes: increased awareness of sustainable utilization and conservation of indigenous fruit trees (IFTs), value-added indigenous fruit products being sold locally, and a small saving scheme "merry-go-round." A challenge remains with the adoptability of the propagation techniques because of the long time indigenous fruits take to mature. Therefore, there is a need to fast-track research in this area.

Páramos as changing ecosystems: a multi-temporal analysis of perceptions on the change of páramo areas in the delimitation process, Colombia. Lopez Gomez, C. (*Universidad Nacional de Colombia, Colombia; cplopezg@unal.edu.co*).

Multi-temporal analyses involving socioeconomic and cultural information were used to define the change of relationships between the population and protected high-altitude *páramo* areas as well as natural resources in the territory. The study aimed to identify the major changes in the areas in the course of the delimitation process in order to define the historical and cultural relationships between people and traditional or technologically advanced production systems and technologies that are being applied by the communities of the surrounding region within the jurisdiction of the local environmental Corporation of Corantioquia. It evaluated the impact of these production systems and technologies on the biodiversity and ecosystem services of *páramos*, and also defined sociocultural parameters that can be linked with physical and biotic criteria for the delimitation of *páramo* areas. The results highlighted the challenges and limitations of the participatory process and criteria for inclusion of the population in managing and transforming protected areas of high social value (e.g., the *páramos*) because of their importance for the provision of ecosystem services such as water. In addition, the current pressures on these ecosystems in the Department of Antioquia, Colombia, are evaluated, and the relationship between actors as the main axis for making decisions on protected areas, is analyzed.

Survival analysis in plantations of *Araucaria angustifolia* (Paraná pine) derived from seedlings and seeds. Maran, J. (*Federal University of Paraná, Brazil; jess.maran@gmail.com*), Rosot, M., Radomski, M. (*EMBRAPA, Brazil; augusta_rosot@hotmail.com; maria.radomski@embrapa.br*), Kellermann, B. (*Federal University of Paraná, Brazil; kdbetina@hotmail.com*).

The forest type most characteristic of southern Brazil is the *Araucaria* forest, strongly marked by the presence of Paraná pine (*Araucaria angustifolia*). Overexploitation of this species reduced its range to 2% of its original area. A research project developed by EMBRAPA Forestry is concerned with the planting of *A. angustifolia* on small farms as a strategy for the conservation of the species and as an economical alternative to the producer. Therefore, an experiment was conducted to evaluate germination, survival, and predation rates of seeds and seedlings of *A. angustifolia*, analyzed as a completely randomized unbalanced factorial design with two factors (type of plantation: pure/mixed; raw material: seeds/seedlings), for a total of three treatments, with three replicates each. Fourteen months after planting only 17% of the seed spots contained live plants; 14% of planted seedlings survived. About 9% of the seeds did not germinate, and 60% were consumed by animals. Seedling mortality was 59% in the "pure" treatment and 80% in the mixed treatment. In the mixed treatment, seed losses due to fauna attack were lower (42%) compared to the "pure" treatment (69%); the opposite pattern was observed for seedlings.

A comparative analysis of global stakeholders' perceptions of the governance quality of the CDM and REDD+.

Maraseni, T. (*University of Southern Queensland, Australia; tmaraseni@hotmail.com*), Cadman, T. (*Griffith University, Australia; cadman@gu.edu.au*).

This paper provides a quantitative and qualitative analysis of global level stakeholders' perceptions regarding the governance of the clean development mechanism (CDM). The research conducted via an anonymous online survey, using a normative framework of principles, criteria, and indicators. It compares these findings with the results of a similar survey conducted by the authors on REDD+. Stakeholders from both the global North and the global South were asked to rate the quality of these mechanisms against 11 performance indicators, using a scale from "very low" to "very high" (1-5). Overall, the results from CDM stakeholders from both the global North and global South were very similar. The highest and lowest total scores were obtained from the institutional and social stakeholders, respectively. These results demonstrate that these two groups have considerable differences in perceptions. CDM failed in two indicators, "equality" and "resources," and passed marginally in all other nine indicators. The performance of REDD+ was much higher than CDM in all aspects of governance surveyed. The major differences were in "equality" and "problem solving." If the CDM is to be continued in the post-Kyoto period, some major systemic changes in governance are necessary, and some lessons can be learned from REDD+.

International Masters in Wood Energy: an EU project for developing higher education in the bioenergy sector. Marchi, E. (*University of Florence, Italy; enrico.marchi@unifi.it*), Tasanen, T. (*Seinäjäski University of Applied Sciences, Finland; Tapani.Tasanen@seamk.fi*), Jager, L. (*University of West Hungary, Hungary; jagerla@emk.nyme.hu*), Bonet, J. (*University of Lleida, Spain; jantonio.bonet@exchange.ctfc.es*), Picchi, G. (*National Research Council (CNR), Italy; picchi@ivalsa.cnr.it*), Navarro i Maroto, P., Smith, M.

The EU has set very challenging goals for the partial replacement of fossil fuels with renewable energy by 2020. In many EU countries forests are the main source of renewable energy and wood energy is booming all over the continent. Technologies for woody biomass production, transportation, and energy conversion are rapidly expanding both inside and outside the EU. In this