

# **Medicinal Plants Cultural Diversity in Gunung Walat Educational Forest to Enhance Health Sovereignty and Payment of Environmental Services**

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## **ABSTRACT**

Gunung Walat Educational Forest (GWEF) is one of field laboratories of Bogor Agricultural University (IPB), Indonesia. Faculty of Forestry is the manager and has been searching some sustainable ways to manage the forest. Unfortunately, basic information on GWEF has been lacking, especially related to biological diversity resources. The research was aimed at supporting basic information of GWEF, especially on medicinal plant, and establishing a sustainable management of GWEF based on medicinal plants and mechanisms of reward for environmental services provided by surrounding communities.

The field research was conducted at Gunung Walat Educational Forest IPB from May to July 2002. Methods used were: (1) forest-floor vegetation analysis, (2) interview with surrounding community and stakeholders, and (3) Geographical Information System (GIS).

Gunung Walat Educational Forest is a 359 Ha-manmade forest, which consists of 6 major tree stands from genus *Pinus*, *Acacia*, *Schima*, *Agathis*, *Swietenia*, and *Albizzia*. The Forest-floor Vegetation Analysis resulted in 85 species of forest-floor vegetation, which belong to 46 families. Seventy species of them belong to medicinal plants. According to the interview with surrounding communities, there are 177 species of plants they use for medicines. Only 20 species

are found in GWEF, but they utilize only 3 species from GWEF: *Achasma megalocheilos* Griff. for asthma, *Costus speciosus* (Koen.) J. E. Smith for rheumatism, diabetes, diuretic, etc., and *Selaginella plana* Hieron for treatment after giving birth. Interview with stakeholders: Manager of GWEF, Local Government Research and Planning Agency, Forestry Service, and Health Service of Sukabumi Regency, surrounding community, and visitors resulted in their opinion that GWEF must be conserved and best utilized as a sustainable tourism area. Mapping with GIS resulted in spatial distribution of medicinal plant in GWEF. Each stand has a specific relation with medicinal plant found. Pinus stand has the most various medicinal plants due to its large size 110.5 Ha.

Sustainable Management of GWEF based on medicinal plants is how to utilize medicinal plants in this area so that GWEF can increase their income and support their daily management, and how to involve surrounding community so they can gain benefit from the forest. There are 3 suggested activities: (1) cultivation of medicinal plants in GWEF by agroforestry system, (2) establishment of kampong conservation/conservation hamlets by introduction of medicinal plant's home industry, and (3) promotion of eco-tourism as mechanisms of reward for environmental services.

Location for cultivation of medicinal plants are (1) in bare-land area of GWEF, about 22 Ha, for cultivation of *Zingiber officinale* Roxb., *Curcuma domestica* Val., and *Alpinia galanga* (L.) Swartz, and collection of *Imperata cylindrica* Ness.; and (2) in agroforestry area, about 100 Ha, for *Amomum cardamomum* L., *Centella asiatica* (L.) Urb., *Piper betle* L., *Piper nigrum* L., and *Piper retrofractum* Val. These species are chosen based on their ecological relation to GWEF, their medicinal values, demand of Indonesian Traditional Medicine Industries, and familiar to surrounding communities. Using medicinal plants have been planted by local

communities, both from inside GWEF and from their surrounding houses, medicinal plants home industry can be initiated to promote utilization of medicinal plants for family health care and especially to generate local income. Eco-tourism is the most suggested activity in GWEF for its landscape, history, and functions. Medicinal plant knowledge and home industry wrapped in eco-tourism will become an interesting package of eco-tourism program in GWEF.

Eco-tourism is a type of mechanisms of rewards for environmental services provided by surrounding communities. In eco-tourism program, the agroforestry farmers who cultivate various species of medicinal and agricultural plants are identified as one of environmental services (ES) providers/sellers together with copal collectors, and the rest of surrounding communities. The beneficiaries/buyers of ES are the tourists. The manager of GWEF is the intermediary and with support from NGO and donor bodies, eco-tourism program as mechanism of rewards will benefit surrounding communities, so they will continue providing the ES and at the same time preserving, protecting, and conserving GWEF.