

Geomorphological background for traditional agroforestry in West Java

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Traditional land-use systems practiced in some areas of Java are known as a source of the idea of agroforestry. Pekarangan is particularly remarked in both high productivity and compound land-use which is visualized as complicated landscape. It is a kind of home garden in which various kinds of crops including tall and small trees and herbs are mixedly cultivated in combination with feeding of fish, chickens and, in some cases, small domestic animals in a restricted area. Plots for respective crops are carefully arranged in consideration of water- and material-flow in a garden. In West Java, many pekarangans are distributed on sloping and slightly undulating lahar plateaus at the foots of stratovolcanoes, where water is supplied to the gardens from springs or streams through artificial small channels, flumes and pipes made of bamboo in many cases, which are given gentler slope than that of lahar plateau surface. Moderate slope with almost constant direction, which is realized on lahar plateau surfaces, provides for the complicated land-use with valuable resources which make transmittance and distribution of water easy. Of course, porous volcanic edifices also play an important role in almost steady water supply. Shallow depressions on lahar plateaus are used, for example, as small fish ponds in a garden. Productivity of volcanogeneous soils supports all of the land-use on lahar plateau. In addition, narrow but flat bottoms of rather deep valleys by which lahar plateaus are dissected are important. Narrow valley bottoms adjacent to lahar plateaus provide sites suitable for wet paddies from which farmers obtain rice. In other words, very intensive land-use systems practiced on lahar plateaus are partially supported by paddy rice production outside the systems. Both lahar plateaus and valleys are typical landforms of which volcanic foots consist. The geomorphic setting, including hydrologic and pedologic conditions, common to particularly the central and southern zones of West Java is thus evaluated as important environmental resources for traditional compound land-use systems as a prototype of agroforestry.

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