Bamboo can be of great benefit to the environment, not only as a complementary material to wood, but also as one of the most appropriate plants to overcome the ever-worsening damage to the environment year after year.

According to Zulkifli's research, bamboo grows extensively in various continents except in Europe and the Antarctic.

Over 80 percent of bamboo forests are located in Asia, with Africa and America each home to 10 percent of the world's bamboo forests. In Asia, bamboo is mostly found in Southeast Asia and southern Asia like India, China and Korea.

China has the largest number of species, around 400, followed by India (339), Japan (165), and Indonesia (135). In terms of its geographic distribution, bamboo grows mostly in tropical, sub-tropical and temperate regions.

"One of the benefits of bamboo is its capability to raise the water level of soil because it effectively stores water and reduces erosion, as its roots and falling leaves retain water as well," Zulkifli told The Jakarta Post at his office in Sriwijaya University, Palembang, recently.

The biology graduate from Bandung Institute of Technology (1975) and holder of a master's degree in environmental biology (1984) explained that a French professor by the name of Francis Halle, had also advised him to research bamboo.

Zulkifli met Halle while studying at Universite de Montpellier II, in Southern France. The 63-year-old professor had also conducted research into bamboo in the Bambouseraie de Prafrance, a bamboo garden and nursery in the French Languedoc region.

Back at home, Zulkifli carried out his bamboo research in Lampung and South Sumatra, basing his pilot programs in bamboo plantations there between 1987 and 1990.

"I focused on monopodial bamboo, also called running bamboo and mostly found in China, and simpodial bamboo, growing in cluster form, also known as tropical bamboo."

From an ecological perspective, bamboo forests provide habitat for wildlife, regulate water circulation and control erosion.

They also function as the lungs of the earth thanks to their ability to absorb carbon dioxide

through photosynthesis and produce oxygen, necessary for human life.

“Increased carbon dioxide production as a result of environment damage creates a greenhouse effect and global warming, inducing natural disasters like landslides, flash floods and erosion. It is in this light that the role and function of bamboo can be enhanced,” said Zulkifli, also chairman of the South Sumatra branch of the French Graduates Association.

Data from the United Nations Development Program (UNDP) in 2007 showed forest destruction in Indonesia was increasing at an alarming rate, rising from no less than 60,000 hectares annually in the 1980s to 1.6 million hectares annually, equivalent to a decrease in forest cover from 129 million hectares in 1990 to 82 million hectares in 2000.

World Bank data in 2007 listed Indonesia as the third largest greenhouse gas contributor after the US and China, with the equivalent of 2.563 million tons of carbon dioxide from forest reclamation, and 451 million tons from energy burning, agriculture and waste.

A study shows that a 1.17-hectare bamboo forest can absorb 62 tons of carbon dioxide annually through photosynthesis, while other trees of the same area can only absorb 15 tons.

To prevent further damage and restore the function of forests to produce oxygen and control erosion, he suggested the government and those concerned with the environment grow bamboo trees particularly on infertile land that doesn’t require high technology. Bamboo shows the fastest growth for the greening of degraded land.

Most communities in the country are already used to working with bamboo, like the people in Pakraman Angseri village, Bali.

The local community there restored underground water and hot water springs while increasing their income from bamboo handicrafts and monkey tourism in the village’s bamboo

“Bamboo absorbs 90 percent of rain water, compared to between 35 to 40 percent by other trees,” pointed out Zulkifli, who worked with PT Pusri Palembang to grow bamboo in the fertilizer company’s settlement.

Bamboo’s erosion and landslide control capacity, according to him, is due to its solid and extensive rooting system, with horizontal and vertical growths covering broad areas.

“In this way, bamboo can prevent water escape (by 25 percent), which is very effective to protect river basins, river plains, barren land, and other areas prone to quakes and landslides,” added the father of five and grandfather of seven.