DEVELOPING COUNTRIES
AND
INTERNATIONAL AGRICULTURAL TRADE

A Conference Sponsored by S-224 Regional Research Project

Quality Hotel of Arlington
Arlington, Virginina
April 8-9, 1991

Fred J. Ruppel
Program Coodinator

Stanley M. Fletcher
S-224 Chair

FACTORS AFFECTING INDONESIAN NATURAL RUBBER AND PALM OIL EXPORTS AND AGRICULTURAL DEVELOPMENT AID

C.W. "Bill" Herndon, Jr., Ahmad Muslim and Maria Sumartini
Mississippi State University

Natural rubber and palm oil play important roles in the Indonesian economy as a source of income for millions of Indonesians. Natural rubber accounts for the highest foreign exchange earnings while palm oil ranks third among Indonesia's agricultural export commodities. To facilitate and enhance these exports, Indonesia received loans from the World Bank and the Asian Development Bank to improve and increase natural rubber and palm oil production. However, rubber and palm oil production compete for many of the same land and labor resources available in Indonesia. This analysis attempts to draw some inferences from two separate studies of Indonesian: (1) natural rubber demand and supply analysis, and (2) palm oil export analysis.

Fluctuations in natural rubber and palm oil prices have caused export earnings to fluctuate widely. Whether these two commodities can be consistent earners of foreign exchange is the important issue of this study, that is, whether increased natural rubber and palm oil production and exports should be encouraged through governmental policies. Additionally, the effectiveness of development loans to improve the Indonesian economy through increased rubber and palm oil production is an issue addressed in this analysis. The specific objectives of these studies were to develop models for (a) estimating the elasticities of import demand for natural rubber and palm oil, and (b) estimating the elasticity of supply of Indonesian natural rubber and palm oil.

In the natural rubber analysis, a two-stage least-squares procedure was used to estimate the parameters of fifteen supply, demand, and price equations. The study found that price inelastic demand for natural rubber accompanied by a decreasing trend of world natural rubber prices, indicates that decreasing revenues from natural rubber exports can be expected. This suggests that increasing Indonesian export earnings is inconsistent with the expansion of natural rubber production and exports. Also, the investment of World Bank funds by the Indonesian government in rubber production does not appear to be justified from the results of this analysis.

Most of the Indonesian palm oil exports are shipped to the European Community (EC), accounting for over 70 percent of total exports during the 1984-87 period. Therefore, an analysis was conducted investigating the factors affecting Indonesian palm oil exports and EC import demand for palm oil using ordinary least squares for the years, 1968 - 1987. Results showed that seventy-four percent of the variation in the quantity of palm oil exported to the EC was explained by palm oil price and palm oil production. Eighty-nine percent of the variation in the quantity of palm oil imported by the EC was explained by (a) the price of palm oil, (b) the price of lard, (c) the price of fish oil, (d) the weighted average price of other vegetable oils, (e) income per capita, and (f) a time trend.