

SEAG-Symposium, October 14-18, 2002, Vietnam

“The role of dialogue and networking:  
From a transitional to an industrialized country”

## Management of Natural Resources in Agricultural System Supporting Agroindustry in Indonesia

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### Abstract

Agroindustry has been promoted to developed in all country of Southeast Asia. As consequences, a sufficient amount of raw materials is required. To supply the raw material, agroindustry can cooperate with group of farmers through contract farming. In this system contract agreement has to provide advantages to both side.

Agricultural practices such as tillage, irrigation, fertilizing and crop protection involve some natural resources directly or indirectly. Soil and water for irrigation are natural resources used directly for crop production, whereas fossil fuel was natural resources used indirectly for example as energy support in fertilizer and pesticide production or as energy motor for operating agricultural machinay. As intensive agricultural practices without considering the sustainability of natural resources and appropriate conservation practice led to the degradation of natural resources and environment.

Whenever crops are harvested, significant quantities of nutrients from the soil are removed as they have been incorporated into the growing plant material. In recycling these nutrient, livestock manure, compost, or green manure offers a traditional substitute presently being used.

To reduce the risk of soil destruction due to an intensive tillage, reduce tillage or minimum tillage combined with mulching can be applied. The frequency of soil tillage in annual crops can be reduce by mulching.

In Indonesia, intensive irrigation system are concentrated for rice fields or cetain crops such as onion. Most horticulture and estate crops production are partly rainfed and partly irrigated cultivation. In this system, crops are partly dependent upon precipitation but irrigation is also conducted by farmers particurary during dry season.

With increasing awareness of the negative impacts of an intensive use of pesticides abd the importance of sustainable agriculture, pest control have been directed to an integrated pest management. The increase of public awreness to environmental pollution and food safety has encourage the agroindustries to use the raw materials which are free from pericide residues.

Natural resources that make agriculture so location specific create the need for Assesment Institutes for Agricultural Technology to provide leadership in their adaption to optimize local resources to enhance productivity and farmers income.

**Keywords:** Agricultural system, agroindustry, natural resources