

1



**Sustainable Development in the  
Context of Globalization and Locality:  
Challenges and Options for Networking in Southeast Asia**



**Proceedings**

September 18-22, 2000 in Bogor, Indonesia

**Published by: South East Asia-Germany Alumni-Network (SEAG)**

**Editors of the Supplement:**

German Institute for Tropical and Subtropical Agriculture GmbH, Witzenhausen  
University of Kassel, Faculty of Agriculture, International Rural Development and Environmental  
Protection (FB11), Witzenhausen  
Verband der Tropenlandwirte Witzenhausen e.V., Witzenhausen

**Editorship:**

Syarifah Iis Aisyah, Bogor and Hans Hemann, Witzenhausen  
Universitätsbibliothek Kassel  
ISSN 0173 - 4091  
ISBN 3 - 89792 - 067 - 0

**Publishing House:**

Universitätsbibliothek Kassel  
Diagonale 10, 34127 Kassel  
Germany

**Distributor:**

Tropenzentrum; FB 11  
Steinstr. 19,  
37213 Witzenhausen  
Germany

**Printing Company:**

RUKKABA Press.  
Jl. Cipinang Baru III/14  
Jakarta Timur  
Indonesia

December 2001

## Foreword

The proceeding is produced from papers collected during International symposium cum workshop of SEAG (South-East Asia-Germany) held in Bogor-Indonesia, on September 18-22<sup>nd</sup>, 2000.

We would like to express our deeply thanks to our colleagues from University of Goettingen, University of Kassel, University of Marburg and Bogor Agricultural University, which had a very fruitful cooperation either as steering committee members or organizing committee members, working hard to the success of the symposium cum workshop, until this book published.

We are also greatly indebted to the DAAD for the financial support, as a main sponsorship to this symposium cum workshop. The programme was therefore very smoothly conducted.

Finally, our sincere appreciation is extended to the editors, who had shared hard working to finish the book.

## Preface

This proceeding was made possible through the long term German alumni network for South-East Asia Region (SEAG) funded by DAAD.

This publication documents the experiences of the several projects in South-East Asian Countries (Indonesia, Philippines, Malaysia, Cambodia, PR Laos, Myanmar, Thailand and Vietnam). While certain peculiarities were individually experienced, a pattern may be discerned in their works. The topic of the symposium was "Sustainable Development in the Context of Globalisation and Locality Challenges and Options for Networking in South-East Asia".

This publication details the lesson learned, as well as the adaptive planning process in building network through research results. Three main areas were included in this symposium: (A) Socio-economic Development, (B) Natural Resources, and (C) Science, Research-Teaching and Organization.

In group A, two authors wrote about the role of women in agriculture: **Fuah**, has written the contribution of women to livestock production systems in Eastern Indonesia, and **Dumlao, Corpus and Leones** have written the role of Filipino Women in Agricultural Development. The topic of agriculture itself, was written by three authors: **Ananda**, who wrote the role of agriculture, as key sector for Indonesian economic recovery (an input-output analysis), **Widyasunu and Widodo** who wrote about the role of organic farming to the development of Indonesian agriculture, and **Rosyadi** who wrote about the adoption of improved tumpangsari practices on Central Java, Indonesia. The topic of socio-economic development in forest area was covered by the articles from **Saragih, Rao and Seila**. **Saragih** underlined the role of non-timber forest product in sustainable economic development, whereas **Rao and Seila** wrote the improvement of forest concession management planning. For the marketing subject, **Repu and Bunga** made an article about it. **Bunga** analysed the marketing efficiency of agriculture product, while **Repu** more stressed it in cocoa marketing; both took East Nusa Tenggara as a case study. The other two subjects were about the endangered sandalwood by **Sinlae**, and the Regional autonomy and regional development in Indonesia, by **Tope**. Finally, **Mulatsih** told about development and the environment: human capital as a mean to sustain.

In group B, discussion was about natural resources, which covered the scientific topics in agronomy, Forestry, and animal husbandry. The most numerous topics were in agronomy subjects, including plant production, plant breeding, soil science, and control of plant pest and disease, including biochemical and also biotechnology process.

In plant production, **Sodikin** observed the possibility of using plant biomass as renewable energy source, while **Karimuna, Denich and Vlek** wrote the biomass and nutrients stocks of fallow vegetation in Southeast Sulawesi, Indonesia. **Bernadina, Kabasa, Thinggaard and ter Meulen** studied the effect of sowing lablab bean under maize crop on dry yield and chemical composition of maize and lablab leaves; and **Irawan** wrote the conservation of ironwood through cutting propagation using plant growth regulator IAA and IBA. **Hasbi** discussed the management side of agriculture for organic coffee by using organic matter to improve the sustainable, while **Akyas** presented his preliminary

study on the productive canopy structure of some citrus and mango cultivars. The success of micro propagation on calla lily by tissue culture was reported by **Purwito, Aisyah and Tjandra**. For soil subject, the article of modelling soil erosion in GIS was written by **Somba**.

In plant genetic and breeding, **Taryono and Supriyanta** wrote the sustainable upland-rice-based agriculture, which was stressed on the role of rice breeding for weeds resistance. The rest four authors in plant breeding described the genetic characters of several clones or cultivars observed, e.g. **Mukminah, Sodikin, Keutgen and Janssens**, characterised the photosynthesis capacity of several sweet potatoes clones; **Kale** described the physical and chemical characteristics on several cultivated and wild species of yam bean tuber; **Aisyah, Rahardjo and Djatnika** made description on the resistance character of several carnation cultivars, while **Boer** did molecular analysis on germplasm of local maize cultivars from Sulawesi.

In the area of plant pest and disease control, **Habazar, Rivai, Bakhtiar and Rahma** studied the ISR of soybean to bacterial pustule by the root colonizing fluorescent *Pseudomonads*; Screening on red pepper seedling for identifying resistance to *Phytophthora capsicii* was done by **Widodo**; while biochemically, the effect of neem on migratory locust was studied by **Arinafril**.

For the subject of forestry, **Syahrudin, Ruhayat and Suba** proposed nutrient cycle as a mean to assess the sustainability of plantation development. In agro industrial technology, there was an article about the characteristics of the arrowroot starch and its use as the resource of raw material for glucose syrups, written by **Indrasti, Mangunwijaya, Nasution and Chilmijati**.

Six articles in animal husbandry were presented during the seminar. There were about ewe and doe productivity under village and improved management system, written by **Sodiq**; Effect of essential oil of spices as feed additives on the growth and carcass characteristics of growing-finishing pigs, written by **Onibala, Gunther and ter Meulen**; and flashes from the past until to date on animal metabolic research at the metabolic research Center, Bogor, written by **Sastradipradja**. From social point of view, **Dethan** wrote an article about the efficiency analysis of the utilisation of production factors on beef processing in small business enterprises (case study in West Timor, Indonesia). Biochemical study on VFAs production on ruminants (under *in vitro* condition) using SA leaves was observed by **Suprayogi, ter Meulen, Ungerer and Chairul**. The molecular analysis was done by **Prajoga**, on dairy cattle  $\beta$ -lacto globulin, using PCR and RFLP method of analysis. Upon all of these articles in group B, **Malole** wrote his idea to establish the centre of information system for tropical agriculture and forestry.

Group C discussed the topics of science, research, teaching and organization. Here, **Ogbinar** presented his paper on promoting effective research culture, whereas **Dharmawan and Putri** wrote their conceptual analysis on new orientation of business activities under the framework of ecological economy.

For improving academic atmosphere or career development of university staff, there are several authors wrote: **Hawibowo, Wimbari and Kumara** wrote the article about the

university staff career development programme, while **Tumapon** wrote the curriculum revisited: towards in-depth change. **Pertiwi** propose her idea on web-based collaborative teaching, **Wasmuth** gave attention in higher education, in the context of development cooperation, whereas **Adhi**, based on his experience, wrote the sustainable development in higher education management: learning from the co-operation of higher education institutions.

We hope that through this publication the myths in empowering alumni organization network will be clarified; that the seemingly elusive goal of socializing research results for consumption by the public through this network will be achieved, and the development of the rural areas in the region will be hastened.

Publisher

December, 2001

## TABLE OF CONTENTS

### Keynotes

Promoting Science and Technology in Higher Education Through Research and Development (Indonesian Case) <i>(Jajah Koswara)</i> .....	1
---	---

### Thematic Address

Sustainable Development in an Innovating Economy <i>(Jochen Röpke)</i> .....	5
---	---

### A. Socio-Economic Development

The Contribution of Women to Livestock Production Systems in Eastern Indonesia <i>(Asnath M. Fuah)</i> .....	21
Agribusiness and Sustainable Development: New Orientation of Business Activities under the Framework of Ecological Economy (A Conceptual Analysis) <i>(Arya Hadi Dharmawan and Eka Intan Kumala Putri)</i> .....	28
Agriculture as key sector for Indonesian Economic Recovery– an Input-Output Analysis <i>(Candra Fajri Ananda)</i> .....	40
Role of Filipino Women in Agricultural Development <i>(Florentina S. Dumlao, Lily F. Corpus and Meiji Leones)</i> .....	47
Regional Autonomy and Regional Development in Indonesia <i>(Patta Tope)</i> .....	52
The Role of Organic Farming To The Development of Indonesian Agriculture <i>(P. Widyasunu and Widodo)</i> .....	57
Efficiency of Cocoa Marketing in Indonesia: An Empirical Study in Sikka, East Nusa Tenggara <i>(Vincentius Repu)</i> .....	63
An Analysis of Marketing Efficiency of Agricultural Product (Case Study of East Nusa Tenggara) <i>(Markus Bunga)</i> .....	73
The Financial Benefits of Reduced Impact Tractor Logging <i>(Yosep Ruslim, Alexander Hinrichs and Budi Sulistioadi)</i> .....	84
Agribusiness-Base Regional Development Model of West Java Province <i>(Ramdhon Bermanakusumah)</i> .....	89
Development and the Environment: Human Capital as a mean to Sustain <i>(Sri Mulatsih)</i> .....	95

## B. Natural Resources

Volatile Fatty Acids (VFAs) Production under In-Vitro Conditions Using <i>Sauropus androgynus</i> Leaves (Agik Suprayogi, Udo ter Meulen, Tonny Ungerer and Chairul) .....	101
Small Ruminant Production Under Village and Improved Management Systems in Indonesia (Akhmad Sodik) .....	105
Modelling Soil Erosion in GIS (Bunga Elim Somba) .....	111
Nutrient Cycle as a Means to Assess the Sustainability of Plantation Development (Syahrudin, Daddy Ruhayat and Rachmat Budiwijaya Suba) .....	118
Possibility of Using Plant Biomass as Renewable Energy Source in South-Sumatra (Erizal Sodikin) .....	131
Management of Agriculture for Organic Coffee by Using Organic Matter to Improve the Sustainable (Hudaini Hasbi) .....	136
Role of Non-Timber Forest Products in Sustainable Economic Development: A Study During Indonesian Economic Crisis in East Kalimantan (Bernaulus Saragih) .....	142
The Improvement of Forest Concession Management Planning (Sar Rao and Det Seila) .....	149
Dairy Cattle $\beta$ -Lactoglobulin: Determination of Alleles A and B By PCR and RFLP Analysis Using Plucked Hair and Milk as a Resource of DNA (Sri Bandiati Komar Prajoga) .....	155
Endangered Sandalwood ( <i>Santalum album</i> ) Species in Nusa Tenggara Timur (Yonatan Sinlae) .....	165
Efficiency Analysis of the Utilisation of Production Factors on Beef Processing in Small Business Enterprises. A Case Study from West Timor, Indonesia (Fred Marthinus Dethan) .....	172
Effects of Essential Oil of Spices As Feed Additives On The Growth And Carcass Characteristics of Growing-Finishing Pigs (Jane S. I. T. Onibala, K.D. Gunther and U. ter Meulen) .....	179
Flashes From The Past Until to Date on Animal Metabolic Research at The Metabolic Research Center at Bogor (D. Sastradipradja) .....	185
Center of Information System for Tropical Agriculture and Forestry: Its Role in The Sustainable Development of South East Asia Region (M.B.M. Malole) .....	189
Reforestation and Forest Rehabilitation in Sarawak (Joseph Jawa Kendawang & Aaron Ago Dagang) .....	192
Biochemical Effects of Neem on Migratory Locust (Arinafril) .....	204
Genetic Analysis on Germplasm of Local Maize Cultivars from Sulawesi (Dirvamena Boer) .....	208



Effect of Sowing Lablab Bean ( <i>Lablab purpureus</i> cv Rongai) Under a Maize Crop on Dry Yield and Chemical Composition of Maize and Lablab Leaves in Kupang Timor, Indonesia (Bernadina, J.D. Kabasa, G.Thinggaard, and U. ter Meulen) .....	216
The Characteristics of the Arrowroot Starch and Its Use as the Source of Raw Material for Glucose Syrups (N. S. Indrasti, D. Mangunwijaya, Z. Nasution, and N. Chilmijati) .....	220
Sustainable Upland-Rice-Based Agriculture I. Rice Breeding for Weeds Resistance (Taryono, Supriyanta) .....	228
Study of Induced Systemic Resistance of Soybean to Bacterial Pustule by the Root Colonizing Fluorescent Pseudomonads (T. Habazar, F. Rivai, A. Bakhtiar, H. Rahma) .....	235
Screening of Red Pepper Seedling for Identifying <i>Phytophthora capsici</i> Resistant (Widodo) .....	243
Photosynthesis Capacity of Sweet Potatoes Clones (Faridatul Mukminah, Erizal Sodikin, Norbert Keutgen and Marc J.J. Janssens) .....	249
Conservation of Ironwood ( <i>Eusideroxylon zwageri</i> T. et B.) Through Cutting Propagation Using Indoleacetic Acid (IAA) and Indolebutyric Acid (IBA) (Bambang Irawan) .....	255
Physical and Chemical Characteristics of Yam Bean Tuber ( <i>Phachyrhizus rich</i> DC.) (Pieter Rihi Kale) .....	264
The Impact of Participation in Social Forestry Program on Poverty Alleviation: The Case of Eight Forest Villages in Banyumas District, Central Java-Indonesia (Slamet Rosyadi and Manfred Zeller) .....	272
A Preliminary Study on the Productive Canopy Structure of Some Citrus and Mango Cultivars (Aos M. Akyas) .....	283
Biomass and Nutrient Stocks of Fallow Vegetation in Southeast Sulawesi, Indonesia (La Karimuna, M. Denich and P.L.G. Vlek) .....	290
Country Report: The Conservation and Use of Indigenous Animal Genetic Resources in Vietnam (Tran Thi Mai Phuong) .....	301
Micropropagation of Calla Lily ( <i>Zantedeschia</i> sp) by tissue culture (Agus Purwito, Syarifah Iis Aisyah and Affandi Tjandra) .....	307
Resistance of Carnation ( <i>Dianthus caryophyllus</i> Linn.) Cultivars to Rust ( <i>Uromyces</i> sp.) (Syarifah Iis Aisyah, I. B. Rahardjo, I. Djatnika) .....	313

### C. Science, Research, Teaching and Organization

Promoting Effective Research Culture: The Case of The Don Mariano Marcos Memorial State University, Philippines (Antonio O. Ogbinar) .....	319
Challenges and Opportunity for IAN-SEAG To Show Their Commitment on Sustainable Development In Eastern Indonesia (Khaerul Muslim) .....	324
University Staff Career Development Programme (Singgih Hawibowo, Supra Wimbari, Amitya Kumara) .....	328
Curriculum Revisited: Towards In-Depth Change (Teresita T. Tumapon) .....	335
Web-based Collaborative Teaching : a Proposal (Setyo Pertiwi) .....	343
Magister Manajemen in Higher Education: respond to University Autonomy? (Supra Wimbari, Singgih Hawibowo, Wisnu Wardhana) .....	350
Higher Education in the Context of Development Cooperation (Werner Wasmuth) .....	357
Sustainable Development in Higher Education Management: Learning from the Co-operation of Higher Education Institutions (Andriyono Kilat Adhi) .....	361
Improving the management of higher education institutions: Learning from Indonesia Public Universities (Wisjnu Martani, Budi Prasetyo, Munakhir Mudjosemedi) .....	367