Indigenous Strategies for Intensification of Shifting Cultivation in Southeast Asia

June 23rd – 27th, 1997
Bogor, Indonesia

ICRAF

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Workshop Programme

Basket weaving in preparation for harvesting the upland rice crop.

Indigenous Strategies for Intensification of Shifting Cultivation in S.E. Asia
Workshop Programme

June 22nd - 27th, 1997
New Mirah Hotel, Bogor,
Jalan Pangrango No. 9A, Bogor, Indonesia
Tel: 62-251-328044 / 312385 / 328434
Fax: 62-251-329423

SUNDAY, JUNE 22:

Afternoon -	Check-in at Hotel / Workshop Registration
	Hanging of Poster Presentations
7:00-8:00	Cocktails at Poolside
8:00-9:30	Dinner

MONDAY, JUNE 23:

7:00-8:00	Breakfast

Opening Programme:
Session Chairperson: Dennis Garrity, Coordinator of ICRAF S.E. Asia Programme

8:00-8:20	Welcoming Remarks by Dr. Dennis Garrity, ICRAF
8:20-8:30	Remarks by CIIFAD, Cornell University - James Hafner, USA
8:30-8:40	Remarks by IDRC - Dr. John Graham, Singapore
8:40-8:50	Official Opening of the Workshop by Dr. Djaban Tambunan on behalf of Dr. Toga Silitonga, Director General of FORDA
8:50-9:20	Keynote Address: '*Working with Plants, and For Them: Indigenous Fallow Management in Perspective*' by Dr. Harold Brookfield, Australia
9:20-9:50	Background Synthesis Paper: *'Modification of Fallow Vegetation to Increase Swidden Productivity: Understanding Farmer Strategies in S.E. Asia'* - by Malcolm Cairns, Indo.
9:50-10:00	Discussion
10:00-10:30	Coffee Break & Group Photograph

Providing a Framework for the Plenary Sessions: Conceptualization of IFM Typologies

POLYCULTURES
GOAL: Harvest of tree products.

CONTINUUM

MONOCULTURES
GOAL: Rehabilitate soil properties after cropping period.

AGROFORESTS

LATEX-BASED:
- ■ *Havea brasiliensis*
  - widespread

RESIN-BASED:
- ■ *Shorea javanica*
  - Krui, Sumatra, Ind.
- ■ *Toxicodendrom vernicifera* /
- ■ *Pinus yunnanensis*
  - west Yunnan, China
- ■ *Styrax tonkinensis* /
- ■ *S. benzoides*
  - northern Laos
- ■ *Styrax benzoin* /
- ■ *S. parallelo neurus*
  - North Sumatra

FRUIT/NUT-BASED:
- ■ *Durio zibethinus*
  - Kalimantan, Ind.
- ■ coconut palm
  - Menado, Sulawesi, Ind.
- ■ commercial fruit orchards
  - widespread

OTHERS:
- ■ *Amomum compactum*
  - northern Laos
- ■ *Amomum subulatum*
  - Himilayan foothills
- ■ *Piper nigrum* (pepper)
  - widespread in Ind.
- ■ *Camellia sinensis*
  - S. China / N. Thailand
- ■ *Coffea spp.*
  - widespread
- ■ *Zanthoxylum limonella*
  - northern Thailand
- ■ *Borassus sundaicus*
  - Roti & Savu Islands, Ind.

MIXED SYSTEMS:
- ■ Kenyah / Iban fallow enrichment
  - Kalimantan, Ind.
- ■ Ifugao woodlots
  - Ifugao, Phil.

PERENNIAL-ANNUAL CROP ROTATIONS
(cyclical taungya system)

TIMBER-BASED:
- ● *Cunninghamia lanceolata*
  - southern China
- ● *Paraserianthes falcataria*
  - Mindanao, Phil.
- ● *Melia sp.*
  - N.W. Vietnam
- ● *Tectona grandis*
  - Laos
  - N.E. India
- ● *Gmelina arborea*
  - widespread
- ● *Eucalyptus spp.*
  - widespread
- ● *Pinus wallichiana*
  - Bhutan
- ● *Santalum sp.*
  - central Laos
- ● cedar
  - Kwangtung, China
- ● *Alnus nepalensis*
  - S./S.W. Yunnan, China

NON-TIMBER:
- ● *Cinnamomum burmanii*
  - Sumatra, Ind.
- ● *Aquilaria sp.*
  - central Laos
- ● *Broussonetia papyrifera*
  - northern Laos
- ● *Giganthochloa levis*
  - Mindoro, Phil.
- ● other bamboo spp.
  - Timor, Ind.
  - southern China
  - northern Vietnam
- ● *Calamus caesius*
  - Kalimantan, Ind.
- ● *Calamus sp.* /
- ● *Plectocomia himalayana*
  - southern China
- ● 'Talun kebun' (mixed)
  - West Java, Ind.

INTERSTITIAL TREE-BASED IMPROVED FALLOW

SIMULTANEOUS:
- ▲ *Alnus nepalensis*
  - Nagaland, India
  - S./S.W. China
- ▲ *Leucaena glauca* / *Gliricidia sepium*
  - Naalad, Cebu, Phil.
- ▲ *Leucaena leucocephala*
  - Amarasi, Timor, Ind
  - Sikka, NTT, Ind.
  - South Sulawesi, Ind.
  - Mindoro, Phil.
- ▲ *Sesbania grandiflora* / *Leucaena leucocephala*
  - Sumba/Flores/Timor, Ind.
- ▲ *Erythrina sp.* / *Desmodium sp.* / *Hybiscus sp.*
  - Flores, Ind.
- ▲ *Albizzia chinensis*
  - Sumba, Ind.
- ▲ *Acacia villosa*
  - Timor, Ind.
- ▲ *Ficus spp.* (fodder)
  - eastern Bhutan
- ▲ *Pinus kesiya*
  - northern India

SUCCESSIVE:
- ▲ *Tephrosia purpurea*
  - north Vietnam
- ▲ *Sesbania spp.*
  - Isabela/Cagayan, Phil.
  - Yap, S. Pacific
- ▲ *Alnus nepalensis*
  - southwest China
- ▲ *Casuarina oligodan*
  - New Guinea
- ▲ *Alnus japonica*
  - N. Luzon, Phil.
- ▲ *Parasponia rugosa* /
- ▲ *Schleinitzia novo-guineensis*
  - Papua New Guinea
- ▲ *Hibiscus tiliaceous*
  - Yap, S. Pacific

RETENTION / PROMOTION OF PREFERRED VOLUNTEER SPP.

ECONOMIC UTILITY:

Food
- ◆ bamboo shoots
- ◆ native vegetables & other wild food plants

Fiber
- ◆ construction materials, e.g., planting *Corypha utan* Lan. & other palm spp. before abandoning swidden to provide roofing materials for field hut construction in next cropping phase
- ◆ harvest of poles useful for house or hut construction
- ◆ *Imperata cylindrica* & other spp. of thatch-grass for roof construction

Fodder
- ◆ *Imperata cylindrica* & other native forages

Fuel
- ◆ **Medicinal Herbs**

Stimulants
- ◆ *Nicotiana tabacum* (tobacco)
- ◆ *Piper beetle* (beetle leaf)
- ◆ + spp. providing shade, pleasant smells, nectar for honey production, attracting wildlife for hunting, etc.
  - all widespread in subsistence swidden communities

ECOLOGICAL FUNCTIONS:
- ◆ - selective felling to retain 'mother trees' & accelerate recovery of secondary forest
- ◆ - protect existing coppices: limit cropping period, fire management & avoid tillage

SHRUB-BASED ACCELERATED FALLOW

NON-N FIXING:

Compositae spp. *(N-accumulating?)*
- ▼ *Austroeupatorium inulifolium*
  - West Sumatra, Ind.
- ▼ *Tithonia diversifolia*
  - Mindanao, Phil.
- ▼ *Chromolaena odorata*
  - Luang Prabang, Laos
  - Nusa Tenggara, Ind.
  - Kalimantan, Ind.
  - Yunnan, China
  - northern Thailand
  - widespread below 1000 m asl

Other
- ▼ *Mallotus barbatus*
  - northern Thailand
- ▼ *Ricinus communis*
  - Timor, Ind.
- ▼ *Tecoma stans*
  - Timor, Ind.

N-FIXING:
- ▼ *Mimosa invisa*
  - Leyte, Phil. (spiny)
  - northern Thailand (spineless)
- ▼ *Cajanus cajan*
  - Mindoro, Phil.

VINY LEGUMES AS SEASONAL FALLOWS

LEGUME ROTATIONS:
- ✱ *Phaseolus calcaratus*
  - northern Vietnam
  - northern Thailand
- ✱ *Amphicarpaea linearis*
  - Hainan Island, China
- ✱ *Flemingia vestita*
  - N.E. India
- ✱ *Dolichos lablab*
- ✱ *Vigna sinensis*
  - northern Thailand
- ✱ *Calopogonium mucunoides*
  - Leyte, Phil.
- ✱ *Pachyrhizos tuberosis*
  - northern Vietnam

- increasing integration of legume components into cropping sequence + ruminant livestock

M.F. Cairns

Plenary Session I: Interstitial Tree-Based Fallows
Session Chairperson: Dr. P.S. Ramakrishnan, INDIA

Oral Presentations:

10:30-10:50 *'Alnus nepalensis-Based Agroforestry Systems in Yunnan, Southwest China'* by Guo Huijun and Xia Yongmei, P.R. China, and Christine Padoch, USA

10:50-11:10 *'Shifting Forests in North-Eastern India: Management of Alnus nepalensis as an Improved Fallow Species in Nagaland'* by Malcolm Cairns, Supong Keitzar and Amenba Yaden, India

11:10-11:30 *'Management of Fallow Species Composition with Tree Planting in Papua New Guinea'* by R. Michael Bourke, Australia

11:30-11:50 *'Intensification of Indigenous Fallow Rotation Using Leucaena leucocephala'* by Fahmuddin Agus, Indonesia

11:50-12:10 *'The Role of Leucaena in Village Cropping and Livestock Production in Nusa Tenggara Timur, Indonesia'* by Colin M. Piggin, Philippines

12:10-1:00 Discussion Period

Related Poster Presentations:

- *'The Naalad Improved Fallow System and its Implications to Global Warming'* by Rodel D. Lasco, Philippines
- *'Pruned-Tree Hedgerow Fallow Systems'* by Peter Suson and Dennis Garrity, Philippines
- *"The Use of Sesbania grandiflora (L) Pior. as a Farmers' Answer to Declining Soil Fertility in Swidden Agriculture in North Central Timor'* by Johan Kieft, Indonesia
- *'Initial Results in SALT Model Application and Some Recommended Solutions to Reduce Shifting Cultivation for Ethnic Minority Farmers in Daklak Province, Vietnam'* by Phan Quoc Sung and Pham Van Hien, Vietnam

1:00-2:00 Lunch Break

2:00-3:30 Poster Session (1st day's categories)

Plenary Session II. Shrub-Based Accelerated Fallows
Session Chairperson: Dr. Hoang Xuan Ty, VIETNAM

Oral Presentations:

3:30-3:50 *'Farmer-Improved Short-Term Fallows Using a Spiny Legume Benet (Mimosa invisa Mart.), in Western Leyte, Philippines'* by Edwin Balbarino, David M. Bates, Z. de la Rosa, and Julito Itumay, Philippines

3:50-4:10 *'Fallow Improvement in Upland Rice Systems with Chromolaena odorata'* by Walter Roder, Soulasith Maniphone, Boonthanh Keoboulapha, and Keith Fahrney, Lao P.D.R.

4:10-4:30 *'Spontaneous Adoption and Management of Tecoma stans Fallows by Local Farmers in a Semi-Arid Region of East Nusa Tenggara'* by Tonny Djogo, Muhamad Juhan, Aholiab Aoetpah, and C. Nalle, Indonesia

4:30-5:30 Discussion Period

Related Poster Presentations:

- *'Use and Management of Mimosa diplotricha var. inermis as a Simultaneous Fallow in Orange Orchards and Upland Annual Crop Cultivation in Northern Thailand'* - by Klaus Prinz and Somchai Ongprasert, Thailand
- *'Management of Austroeupatorium inulifolium-Based Fallows by Minangkabau Farmers in Sumatra, Indonesia'* by Malcolm Cairns, Indonesia

6:00-7:00 Dinner

TUESDAY, JUNE 24:

7:00-8:00 Breakfast

Plenary Session III. Herbaceous Legumes
Session Chairperson: Dr. Kurniatun Hairiah, INDONESIA

Oral Presentations:

8:00-8:20 *'Flemingia vestita-Based Indigenous Fallow Management in N.E. India'* by P.S. Ramakrishnan, India

8:20-8:40 *'Soil Improvement and Conservation Using Nho Nhe Bean (Phaseolus calcaratus Roxb.) in Upland Areas of Northern Vietnam: Initial Results from a Case Study'* by Nguyen Tuan Hao, Ha Van Huy, Huynh Duc Nhan, and Nguyen Thi Thanh Thuy, Vietnam

8:40-9:00 *'Growing Yazhou Hyacinth Beans in Hainan Island in the Dry Season'* by Lin Wei-Fu, Jiang Jusheng, Li Wuige, Xie Guishui, and Wan Yuekun, P.R. China

9:00-9:30 Discussion Period

Related Poster Presentations:

- '*Use and Management of Viny Legumes as Accelerated Seasonal Fallows in Intensified Shifting Cultivation in Northern Thailand*' by Somchai Ongprasert and Klaus Prinz, Thailand

9:30-10:00 Coffee Break

Plenary Session IV. Retention-Promotion of Volunteer Spp. with Economic / Ecological Value
Session Chairperson: Dr. Guo Huijun, P.R. CHINA

Oral Presentations:

10:00-10:20 *'Relict Emergents on Fallow Swiddens of the Lawa in Northern Thailand: Ecology and Economic Potential'* by Dietrich Schmidt-Vogt, Germany

10:20-10:40 '*Successional Forest Development in Abandoned Swidden Plots of Hmong, Karen and Lisu Ethnic Groups'* by Chaleo Kanjunt, Thailand

10:40-11:00 *'Wildfood Plants: Alternative Species from Fallow Lands of the Cordillera Region, Philippines*' by Fatima T. Tangan, Philippines (also accompanying poster)

11:00-11:20 '*Farmer-Initiated Forage Management for Stabilization of Shifting Cultivation Systems*' by Viengsavanh Phimphchanhvongsod and Peter Horne, Lao P.D.R.

11:20-11:40 '*Kammu Fallow Management in Lao P.D.R.*' by Damrong Tayanin, Sweden

11:40-12:30 Discussion Period

Related Poster Presentations:

- '*Commercialization and the Stimulation of Economically Valuable Species in the Fallow Vegetation by Bidayuh Shifting Cultivators in Sarawak, Malaysia*' by Paul Burgers, Zimbabwe
- '*The Potential of Wild Vegetables for Permanent Cultivation or as Fallow Improvement Crops in Shifting Cultivation, Sarawak, Malaysia*' by Ole Mertz, Denmark
- '*Selling Imperata: Managing Grasslands for Profit*' ' by Lesley Potter and Justin Lee, Austral
- *'When Shifting Cultivators Migrate to Work in the Cities, How to Rehabilitate the Grasslands?'* by Borpit Maneeratana and Wichai Songwadhana, Thailand
- *'Natural Forest Regeneration from an Imperata Fallow: The Case of Pakhasukjai'* by Janet Durno, Canada and Tuenjai Deetes and Juthamas Rajchaprasit, Thailand

12:30-1:30 Lunch Break

1:30-2:30 Poster Presentations (all categories)
Signup for Working Groups Parts I and II
Submission of Air Tickets to Travel Agent for Flight Reconfirmations

Plenary Session V. Perennial-Annual Rotations
Session Chairperson: Dr. John Graham, IDRC SINGAPORE

Oral Presentations:

2:30-2:50 *'Forestry Management Strategies Among Hmong and Other Upland Cultivators of the Southwest China Borderlands: The Case of Cunninghamia lanceolata'* by Nicholas Tapp, U.K. and Nicholas Menzies, Kenya

2:50-3:10 '*Teak Production by Shifting Cultivators in Northern Lao P.D.R.*' by Peter Hansen, Houmchitsavath Sodarak, and Sianouvong Savathvong, Lao P.D.R.

3:10-3:30 *'Melia spp. in Indigenous Fallow Management: An Experience from Northern Vietnam'* by Le Trong Cuc and Tran Duc Vien, Vietnam

3:30-3:50 '*Technical and Economic Innovations in Swidden-Based Rattan Cultivation of Benuaq-Dayak People in the Middle Mahakam, East Kalimantan, Indonesia*' by Hideyuki Sasaki, Japan

3:50-4:10 '*Indigenous Management of Paper Mulberry (Broussonetia papyrifiera) in Swidden Rice Fields and Fallows in Northern Laos*' by Keith Fahrney, Onechanh Boonnaphol, Boonthanh Keoboulapha, and Soulasith Maniphone, Lao P.D.R.

4:10-5:00 Discussion Period

Related Poster Presentations:

- *'Multipurpose Trees as Improved Fallows: An Economic Assessment'* by Peter Grist, Ken Menz, and Rohan Nelson, Australia
- *'A Cost-Benefit Analysis of Gmelina Hedgerow Fallow System in Claveria, Northern Mindanao, Philippines'* by Damasa Macandog and Patrick M. Rocamora, Philippines
- *'The Utilization of Dryland Through Bamboo Vegetation as a Fallow Crop in Timor Island, Nusa Tenggara Timur, Indonesia'* by Abdullah Bamualim, J. Triastono, E. Hosang, and T. Basuki, Indonesia and S.P. Field, Australia

Plenary Session VI. Agroforests
Session Chairperson: Dr. Rodel Lasco, PHILIPPINES

Oral Presentations:

5:10-5:30 '*Talun Kebun System: Conflicts and Prospects. A Case Study in the Upper Citarum River Basin, West Java'* by Nani Djuargsih, Payat Ruchiyah, Parikesit, and Oekan S. Abduellah, Indonesia

5:30-5:50 '*From Shifting Cultivation to Sustainable Jungle Rubber in Indonesia: A History of Innovations Integration for Smallholders in the Peneplains of Sumatra and Kalimantan Since the Turn of the Century*' by Eric Penot, Indonesia

5:50-6:10 *'Lacquer Agroforestry System of Lemo in Yunnan, China'* by Long Chun-Lin, P.R. China
6:10-7:00 Discussion Period
7:00-7:10 Briefing on following day's field trip - by Institute of Ecology team, Padjadjaran U.

Related Posters:

- *'"Ma Kwaen" (Zanthoxyliem limonella): A Jungle Spice Used in Swidden Intensification in Northern Thailand with Indigenous Technology'* by Peter Hoare, Borpit Maneeratana, and Wichai Songwadhana, Thailand
- *'The "Tagui Gru' System and Other Karen Fallow Management Practices in Thailand: Building on Indigenous Technologies as a Strategy for Land Use Intensification'* by Payong Srithong, Thailand
- *'Does Tree Diversity Affect Soil Fertility? A Critical Hypothesis and Initial Findings in the Alternative Fallow Management Systems of West Kalimantan'* by Deborah C. Lawrence, Dwi Astiani, Marlina Syazhaman-Karwur, and Isabella Fiorentino, Indonesia
- *'Preliminary Study on Rubber Plantations as a Local Alternative to Shifting Cultivation in Yunnan Province, China'* by Guangxia Cao and Lianmin Zhang, P.R. China
- *'Alnus - Cardamom Agroforestry System: Potential for Stabilizing Upland Shifting Cultivation in the Eastern Himalaya'* by Rita Sharma, India
- *'Impetus and Trend of Agroforestry Economic Plants Development at Village Level'* by Chen Aiguo, Guo Huijun and Cui Jinyun, P.R. China
- *'Fallow Management with Styrax tonkinensis for Benzoin Production in Upland Cultivation Areas in Northern Lao P.D.R.'* by Sianouvong Savathvong, Manfred Fischer, and Khongsak Pinyopusarerk, Lao P.D.R.

7:30 Dinner

8:30 Cultural Show & Open Bar

WEDNESDAY, JUNE 25:

All day field trip to view *'talun kebun'* system practiced in Ciwidey, West Java, and associated village-level processing of fallow products.
Hosted by the Institute of Ecology, Padjadjaran University.

Refer to separate field trip programme for details.

Come prepared for rain (umbrella) or shine (sunglasses and hat)!

THURSDAY, JUNE 26:

7:00-8:00 Breakfast

Plenary Session VII. Multi-System Papers Cutting Across Categories
Session Chairperson: Pelzang Wangchuk, BHUTAN

Oral Presentations:

8:00-8:20 *'Hani Practices of Intensification of Shifting Cultivation in Xishuangbanna, Southwest China'* by Xu Jianchu, P.R. China

8:20-8:40 *'Rebuilding Soil Properties During the Fallow Period: Indigenous Innovations Practiced in the Highlands of Vietnam'* by Hoang Xuan Ty, Vietnam

8:40-9:00 *'Strategies of Shifting Cultivators in the Intensification Process'* by United Nations Office for Project Services, Asia Office (paper presented by Phrang Roy, Malaysia)

9:00-9:30 Discussion Period

Related Poster Presentations:

- *'Recent Changes and Farmer Innovations in the Management of Shifting Cultivation Land in Bhutan'* by T. Dukpa, P. Wangchuk, Rinchen, K. Wangdi, and W. Roder, Bhutan
- *'Changing Land Use Practices by Farmers in Luang Prabang Province, Lao P.D.R'* by Rogier Eijkens and Phanthong Masixonxay, Lao P.D.R.
- *'Improved Fallow Techniques in San Jose, Occidental Mindoro, Philippines: A First Step Toward Upland Management Based Primarily on Perennial Species'* by Michael Robotham, USA
- *'Documentation and Analysis of Indigenous Fallow Management Systems in Selected Areas of the Cordillera'* by Montanosa Research and Development Center, Philippines
- *'Improving and Uses of Fallow Lands in Barren Hills of Sandiu People in Luc Ngan District of Bac Giang Province of Northern Vietnam'* by Ta Long, Vietnam
- *'Local Knowledge of Traditional Shifting Cultivation in the Midlands of Northern Vietnam's Mountainous Regions'* by Nguyen Thi Thanh Nga, Vietnam
- *'Agroforestry Production Practices of Minority Groups in Vietnam's Northern Mountainous Region'* by Tu Quang Hien, Vietnam
- *'Shifting Cultivation in the Central Highlands of Vietnam: Existing Problems and Suggestions for Control'* by Tran Trung Dung, Vietnam
- *'PNG Highland Experiences and the Future of Shifting Cultivation"* by Bire Bino, Papua New Guinea

Plenary Session VIII. Thematic Papers: Property Rights, Markets & Institutions
Session Chairperson: Dr. Uraivan Tan-Kim-Yong, THAILAND

Oral Presentations:

9:30-9:50 *'Productive Management of Swidden Fallows: The Interplay of Market Forces and Institutional Factors in Isabela, Philippines'* - by Paulo N. Pasicolan, Philippines

9:50-10:10 *'The Role of Land Tenure on Development of Cinnamon Agroforestry in Kerinci, Sumatra'* by Suyanto, Thomas Tomich, and Keijiro Otsuka, Indonesia

10:10-10:30 *'The Development of Central Sumatran Traditional Fallow Systems in a Changing Environment'* by Silvia Werner, Indonesia

10:30-11:00 Discussion Period

Related Poster Presentations:

- *'The Role of Policy and Market Institutions in Determining the Feasibility of Rattan Cultivation Within Shifting Cultivation Systems'* by Brian Belcher, India
- *'Effect of Land Allocation to Farmers on Shifting Cultivation in Vietnam: A Case Study of Sinh Pinh Commune, Tua Chun District, Lai Chau Province'* by Dinh Van Quang, Vietnam
- *'Building on Traditional Practices to Improve the Productivity of Natural Resource Management: A Community-Based Approach'* by Tawatchai Ratanasorn, Thailand
- *'The Pivotal Role of Indigenous Regulatory Institutions in Support of Sustainable Swidden Farming Systems in Lao P.D.R.'* by Phouang Parisak Pravongviengkham, Lao P.D.R.

11:00-11:30 Coffee Break

Synthesis Reports:
Session Chairperson: Onechanh Boonmaphol, LAO P.D.R.

11:30-11:40 Interstitial Tree-Based Improved Fallows - by Dr. P.S. Ramakrishnan, India

11:40-11:50 Shrub-Based Accelerated Fallows - by Dr. Hoang Xuan Ty, Vietnam

11:50-12:00 Herbaceous Legume Short Fallows - by Dr. Kurniatun Hairiah, Indonesia

12:00-12:10 Retention-Promotion of Volunteer Spp. with Economic / Ecological Value - by Dr. Guo Huijun, China

12:10-12:20 Perennial-Annual Rotations - by Dr. John Graham, Singapore

12:20-12:30 Agroforests - by Dr. Rodel Lasco, Philippines

12-30-12:40 Multi-System Papers - by Pelzang Wangchuk, Bhutan

12:40-12:50 Thematic: Property Rights, Markets & Institutions - by Dr. Uraivan Tan-Kim-Yong, Thai.

12:50-1:10 *'Farmer-Developed Fallow Management Innovations in Southeast Asia: The Opportunity for Strategic Regional Partnerships'* by James Hafner, Ellen McCallie, and Lucy Fisher, Cornell University, USA

1:10-2:00 Lunch Break
Return of Confirmed Air Tickets to Participants

Part I Working Groups: Consolidation of Current Knowledge

'What have we learned so far?'

Guiding Question:

'What are the key factors that lead to successful indigenous fallow management systems and how can these be transferred to other areas where collapsing swidden systems are endemic?'

2:00-3:00 Working Groups:

Group 1: Socio-Cultural Aspects - co-chaired by Uraivan Tan-Kim-Yong and Nick Tapp
Group 2: Bio-Physical Aspects - co-chaired by Dennis Garrity and Peter Cooper
Group 3: Property Rights & Marketing - co-chaired by Tom Tomich and Chip Fay

3:00-3:30 Tea Break

3:30-5:30 Working Groups (cont.):

Exercise in Hypothetical IFM Technology Transfer Within S.E. Asia's Uplands

IFM Case Studies:

Fallow Species	Reference Paper	IFM Origin	Extension Target
• *Alnus nepalensis*	Session I - Cairns et. al.	N.E. India	N. Philippines
• *Tithonia diversifolia*	Session II - Daguitan et. al.	N. Philippines	N.E. India
• *Melia sp.*	Session V - Cuc and Vien	N. Vietnam	S. China
• *Broussonetia papyrifiera*	Session V - Fahrney et al.	N. Laos	N. Vietnam
• Rattan	Session VII - Jianchu	S. China	N. Laos

7:00 Dinner
Private bar for after-dinner socializing

FRIDAY, JUNE 27:

7:00-8:00 Breakfast

8:00-9:00 Report on Group Findings from Part I
8:00-8:20 Socio-Cultural Report
8:20-8:40 Biophysical Report
8:40-9:00 Property Rights & Marketing Report
9:00-9:30 Discussion

9:30-10:00 Coffee Break

Part II Working Groups: Formulating a Research and Development Agenda

'What needs to be learnt and how?'

Guiding Question:

'Given our existing knowledge of indigenous fallow management systems and their potential, what are the elements of a strategic agenda for continued research and promotion of the most promising IFM technologies in the future?'

10:00-12:00 Working Groups (cont.)

Group 1: Socio-Cultural Aspects - co-chaired by Uraivan Tan-Kim-Yong and Nick Tapp
Group 2: Bio-Physical Aspects - co-chaired by Dennis Garrity and Peter Cooper
Group 3: Property Rights & Marketing - co-chaired by Tom Tomich and Chip Fay

12:00-1:00 Lunch Break

1:00-3:00 Working Groups (cont.)

3:00-3:30 Tea Break

3:30-4:30 Report on Group Findings from Part II
3:30-3:50 Socio-Cultural R&D Agenda
3:50-4:10 Biophysical R&D Agenda
4:10-4:30 Property Rights & Marketing R&D Agenda

Part III Concluding Plenary Session: Laying the Groundwork for a Regional Thrust on IFM
Session Chairperson: Chun Lai

Guiding Question:

'What are the needed components to make it happen?'

4:30-5:30
- Regional Networking / Communications
- Identification of Potential Funding Resources
- Governing Policy on Intellectual Property Rights Associated with IFM
- Etc.

Closing Remarks

6:00 - Dinner at Cafe Botanicus, inside Bogor's Botanic Gardens
Distribution of Workshop Certificates & Group Photographs

SATURDAY, JUNE 28:

7:00-8:00 Breakfast

9:00-11:00 Optional Tour of the Bogor Palace
staggered Departure of Participants

Acknowledgement:
The organizers wish to explicitly acknowledge that the fallow management practices and underlying knowledge presented at this workshop are the intellectual property of Southeast Asia's swidden farmers. This information should be used, with proper accreditation, with the aim of improving their welfare.

Field Trip Schedule & Notes

Field Trip Programme to Ciwidey, West Java, Wednesday, June 25, 1997

Itinerary:

05:15 & 05:30	WAKE-UP CALLS!
06:00 SHARP	Depart from New Mirah Hotel, Bogor
07:15-08:00	Breakfast at Puncak Pass Hotel and Restaurant
09:30-09:45	Brief stop at Ciburuy Padalarang for stretching legs
12:20-12:30	Arrival at Iwan's Fish Farm and introduction to '*talun kebun*' in surrounding area
12:30-13:30	Lunch
13:30-15:00	Field visits and discussion with farmer practitioners
15:00-16:00	Observe village-level processing of bamboo at Sadu Village
16:00-17:00	Return to Iwan's Fish Farm for wrap-up session & snacks
17:00-20:30	Drive back to Bogor
21:00	Late dinner & relaxation at New Mirah Hotel

Organized by Institute of Ecology, Padjajaran University [¤]

Team Members:

1. Dr. Nani Djuangsih, Director Environmental Management / Toxicology
2. Oekan S. Abdoellah, Human Ecologist
3. Parikesit, Agroforestry / Talun Kebun
4. Yayat Ruchiyat, Flora Fauna
5. Herri Y. Hadikusumah, Agroforestry / Home Garden
6. Budhi Gunawan, Anthropologist

Farmer Hosts at Sadu Village, Ciwidey

1. Mr. and Mrs. Aceng
2. Enuh
3. Oo Rustandi
4. Unan
5. Enung
6. Atang
7. Syaifudin

[¤] Jalan Sekeloa, Bandung 40132, West Java, Indonesia. Tel: 62-22-250-4982, 62-22-250-2176; Fax: 62-22-250-4982, Email: Eco.nan@melsa.net.id

Points of interest along the route between Bogor and Sadu village (app. 115 km)

☞ **Puncak and vicinity:**

One of the most popular tourism destinations in West Java. Frequently visited during holidays and traffic jams are a common scene. Among major points of interest are:

Indonesian Safari Park:	The only place where we can see white tiger in Indonesia. Captive breeding of this rare animal (and also other wild animals) has been successfully performed by the park management.
Tea plantation:	Initially established during Dutch colonialisation. But now all the tea plantation area is managed by state company. This plantation produces high quality tea for export. Ecotourism within the area has been developed as part of the company's business diversification.
Gede-Pangrango National Park:	The most popular highland national park in Java. Hiking activity is intense during holidays but getting lost in the forested area within the park is very easy, making search and rescue missing necessary every year. The presence of this park is not only important for conservation of the local biota, but it also, together with other landscape components in Puncak area, functions as a buffer zone for Jakarta.
Cipanas:	Major producer of cash crops (cabbage, carrots, celery, red pepper, etc.) Puncak. Agricultural products are sent Jakarta markets.

☞ **Cianjur: the closest town to Cirata dam**

Ricefields:	Centre of production of high quality (local) rice
Candied fruits:	Made of various fruits such as mangoes, nutmeg, *Phyllanthus acidus, P. emblica,* etc.

☞ **Citarum bridge:**

The first and only toll bridge ever built in Java. This bridge crosses Citarum river and is situated between Cirata and Saguling Dams.

☞ **Cipatat / Citatah:**

Limestone:	The largest limestone and marble producer in West Java. It is the most important income-generating activity in this area because agricultural land is not as good as in other parts of the region.
Fermented cassava:	A traditional food of West Java, the making of fermented cassava is another source of income for some local inhabitants.
Handicrafts:	Made of clay and wood.
Ciburuy lake	Tourism area popular among tourists from Bandung and vicinity.

☞ **Padalarang:**

The first Pulp and paper factory ever built in Indonesia.

☞ **Padaleunyi toll road:**

Connects the western and eastern parts of West Java province.

☞ **Final destination:**

Exit Cimahi / Baros towards Sadu village (Soreang Subdistrict).

Talun-Kebun System: A Traditional Agroforestry In West Java

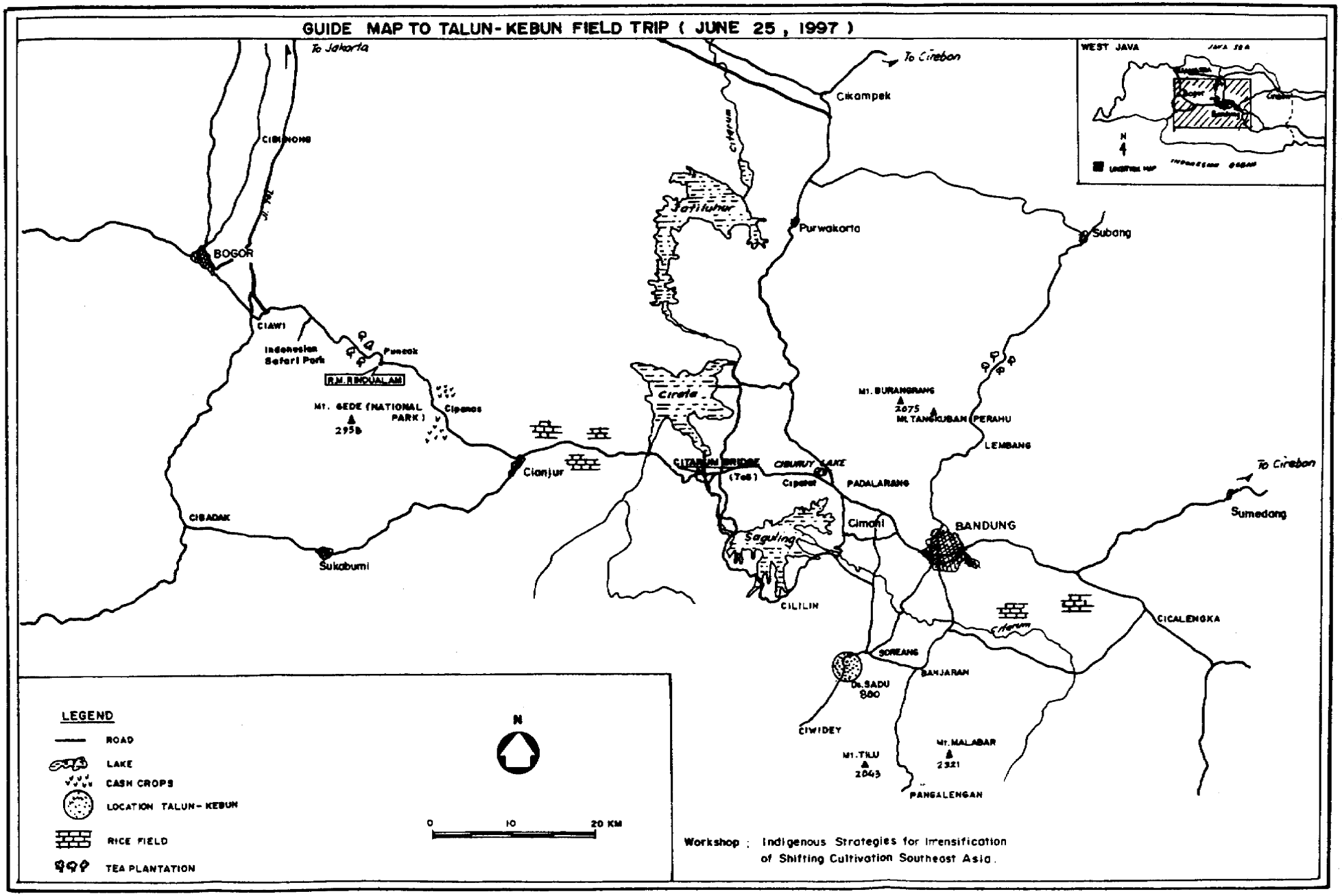
General information

Among Sundanese people of West Java there are three types of agricultural practices: shifting cultivation in upland, dryland rice cropping system, and *talun* system. Whereas wet rice cultivation was introduced from Central Java in the early 1700s. The *talun* system, has been widely practiced in upland areas in West Java. Perennial crops, such as fruits, timber, firewood, bamboo are planted in *talun*. Basically, most of the plants grown in the *talun* system derived from the forest through the process of introduction, domestication, and substitution. After several years, perennials are harvested by clearcutting the *talun* and the cleared space are planted with various annual (food) crops, the so called *kebun*. After two or three years, the sprouting of bamboos and other tree seedlings make the space less available and less profitable for annual crops to be cultivated so that the land is abandoned for several years, the so called *talun*. This *talun - kebun - talun* cycle is then called the *talun-kebun* system.

Talun-kebun system is an upland land use system in which annual crops (*kebun*) are alternated sequentially with tree crops (*talun*). This system increases the overall production and each stage in the system serves different function (Soemarwoto, 1984; Christanty et al., 1996). The overall pattern of the *talun-kebun* system is similar to that of shifting cultivation, but the length of fallow period is much shorter and there is a deliberate selection of species used in each stage (Christanty et al., 1996). *Talun-kebun* system has multiple functions, i.e. subsistence production, commercial production, gene pool, soil conservation, and sosial function. This system seems to offer an alternative to combine economic and ecological (conservation) purposes in order to make agricultural practices sustainable.

Talun-kebun system usually consists of three different stages, i.e. *kebun*, *kebun campuran*, and *talun*. *Kebun* is the first stage in the system where a mixture of annual crops are usually planted in the first year. In this stage, crops planting is mainly for economic purpose since most of the crops are sold for cash. In Soreang subdistrict the major annual crops planted in the first year are, among others, hyacinth bean (*Dolichos lablab*), bitter solanum (*Solanum nigrum*), dasheen (*Colocasia esculenta*), cucumber. In the second year of planting cassava is usually the most dominant crop. Two years after clearing, tree seedlings (including bamboo clumps) have been growing and less space is available to grow annual crops. This development has resulted in the mixture of annual and perennial plants (*kebun campuran* stage). In terms of economic value, the *kebun campuran* stage is usually not as high as *kebun* stage. But in terms of ecological complexity the former is higher than the later. In further development, growing annual crops is not profitable so that the field is abandoned for several (four or more) years. Perennial crops keep growing and dominate the field, while annual crops are outcompeted. The stage in which perennials are dominant is called *talun* stage and this stage is the fallow period the the *talun-kebun* system.

In general, there are three types of *talun*: woodlots, permanent mixed talun, and bamboo talun. In the first type, woods such as *Albizia falcataria* and *Toona sureni* are planted and they are mainly used for firewood and timber. Whereas in the second type, tree fruits such as jackfruit, mango, citrus are also planted besides timber and firewood. In bamboo talun, trees are scatterly planted between bamboo clumps. In bamboo talun in some parts of West Java, at least five species of bamboo are commonly found. Between the bamboo clumps various fruit and timber trees are scattered, such as *Albizia falcataria*, *Parkia speciosa*, *Arenga pinnata*, *Mangifera indica*, and *Durio zybethinus*. The mixture of perennial species and bamboos form a multilayered canopy which makes the structure of talun system look like a forest.


GUIDE MAP TO TALUN-KEBUN FIELD TRIP (JUNE 25 , 1997)
To Jakarta
To Cirebon
Cikampek
Cisadane
Jatiluhur
Purwakarta
Subang
BOGOR
CIAWI
Indonesian Safari Park
Puncak
R.M. R.HOEALAM
Mt. GEDE (NATIONAL PARK)
2958
Cipanas
Cianjur
Cirata
CITARUM BRIDGE
(Tol)
CIBURUY LAKE
Cipatat
PADALARANG
Mt. BURANGRANG
2075
Mt. TANGKUBAN PERAHU
LEMBANG
CIBADAK
Sukabumi
Saguling
Cimahi
BANDUNG
To Cirebon
Sumedang
CILILIN
CICALENGKA
Citarum
SOREANG
BANJARAN
Dc. SADU
880
CIWIDEY
Mt. TILU
2043
Mt. MALABAR
2321
PANGALENGAN
WEST JAVA
LEGEND
ROAD
LAKE
CASH CROPS
LOCATION TALUN-KEBUN
RICE FIELD
TEA PLANTATION
N
0
10
20 KM
Workshop : Indigenous Strategies for Intensification of Shifting Cultivation Southeast Asia.

Opening Programme

Batak farmer in Palawan, the Philippines, sets a snare for wild chicken. Fallows are often preferred hunting sites in remote swidden communities where wild game is important for household protein needs. Favoring vegetation that attracts wildlife can constitute one form of 'improved fallow'.

Opening Programme

Working with Plants, and For Them: Indigenous Fallow Management in Perspective

By Dr. Harold Brookfield*

This paper sets out to place IFM into two main contexts, first an historical context because IFM is not new, and second viewing IFM as one element in a set of modifications which include, inter alia, deliberate change in management of the cultivated soil, which has consequences for 'fallow'. The meaning of the relevant terms is first discussed. These include 'shifting cultivation', the 'fallow', dynamism in 'shifting cultivation' and all farming, 'intensification' and improvement. Use of specific plants to shorten or improve the fallow meets the basic definition of 'intensification' as enhancement of productivity on constant land, but it does so very cheaply in terms of human effort. It is 'hitching a ride with nature'.

More labour-intensive changes in land management, especially incorporation of organic matter into the soil, transforms not only the conditions of production but also the enduring plant environment. Examples from Africa demonstrate how whole vegetation complexes can be changed in this way over quite short time. Their relevance to understanding change especially in the drier parts of Southeast Asia is discussed. In wetter parts of Southeast Asia, the region's most distinctive contribution to intensification lies in progression from a managed fallow to the creation of complex agroforests coupled with conversion from shifting to permanent arable. The rapid present transformation of conditions in the upland parts of Southeast Asia, and the rapid changes in demands and pressures on upland farmers, demand that all means of intensification, from the simplest fallow management to total transformation be taken into account. They lie along a continuum, and the workshop needs to take this into account.

* Department of Anthropology, Division of Society and Environment, Research School of Pacific and Asian Studies (RSPAS), 7233A Coombs Building, Australian National University, Canberra, ACT 0200, AUSTRALIA. Tel: 61-6-249-4348; Fax: 61-6-249-4688 or 4896; Email: hbrook@coombs.anu.edu.au

Modification of Fallow Vegetation to Increase Swidden Productivity: Understanding Farmer Strategies in Southeast Asia

By Malcolm Cairns*

Research and development approaches to intensify upland farming systems have been characterized as top-down, researcher-driven, and regarding farmers as helpless 'beneficiaries' waiting for outside solutions. Only in recent years has the potential of indigenous knowledge become more widely recognized - leading to more enlightened paradigms that embrace farmers as innovative partners in the development process. This more humble and respectful approach to farmer knowledge is long overdue - and sets the stage for more genuine farmer - extensionist - scientist collaboration in problem-solving.

Although research attention to indigenous fallow management (IFM) may be new, the component practices are probably almost as antiquated as swidden cultivation itself. Under the rubric of farmer-up approaches, this paper presents a S.E. Asian overview of the entire spectrum of shifting cultivators' responses to pressures to manage fallow land in more productive ways. It suggests a continuum of typologies of IFM innovations, providing a structural framework for organizing the subsequent case studies presented in the workshop plenary sessions. A map is included to illustrate the spatial distribution of IFM technologies known to be practiced in the region.

The rich diversity of IFM technologies documented by this survey clearly illustrates farmer capacity to adapt innovative solutions to new opportunities and constraints It rebuts popular stereotypes of swidden cultivators as resistant to change, stagnant under the confines of socio-cultural dictates. It equally challenges the notion that fallow land is necessarily either idle or unproductive. The paper concludes that often isolated pockets of shifting cultivators have successfully responded to intensification pressures by evolving improved variations of fallow husbandry. These practices are of immense scientific and development interest for their potential for further refinement and extrapolation to other communities in S.E. Asia's uplands facing swidden degradation problems. This is not suggested as a panacea - but is a promising approach that builds on indigenous practices and needs to be added to our repertoire of technical responses to declining swidden systems.

Keywords: indigenous, fallow management, swidden intensification, Southeast Asia

* ICRAF Southeast Asia Programme, Jl. Gunung Batu No. 5, P.O. Box 161, Bogor 16001, Indonesia. Tel: 62-251-315234; Fax: 62-251-315567; Email: ICRAF-INDONESIA@cgnet.com, icrafind@indo.net.id