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Washington, D.C.

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Chronological file - 1983

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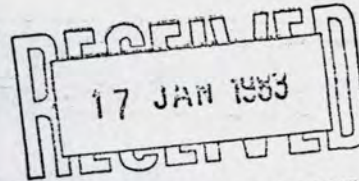
Jalan Melewal VI/8, Kebayoran Baru
Jakarta Selatan, Indonesia
Telephone : 715608 Telex : 47129 RMIJKT

Mr. Walden

*AKL to
Lauder*
Mian

15 January, 1983.

Mr. M.J. Walden.
Chief, Agricultural Division,
IBRD RSI,
Arthaloka Bldg.,
Jakarta.



Copy sent to MIA

Dear Mr. Walden,

... Enclosed is a rough draft proposal for a Small Scale Enterprise Development Component for Trans-II.

This concept has been discussed on an informal basis with Ms. Gloria Davis by Tim Babcock during her last visit to Indonesia. At that time, according to Mr. Babcock, Ms. Davis indicated that the World Bank would be willing to support this activity with a portion of the unallocated Trans-II loan funds.

We have further discussed this proposal with Bp. Bambang Sumantri who also is fully in support of the concept.

At this time we would request : a) confirmation from the Bank that funds are available, and b) advice concerning the manner in which these funds could be made available as expeditiously as possible.

We make this request in order that we may assist the JMT in identifying : 1) the most appropriate agency to assume responsibility for the implementation and follow up of the project; and 2) the most efficient manner for budgetting funds and recruiting local consultants.

Thank you very much for your assistance in this matter.

Yours sincerely,

Lloyd Feinberg.
Trans-II Project Manager.

cc. : 1. Bp. Bambang Sumantri.
2. Dr. Butcher.

LF/ru

TECHNICAL ASSISTANCE FOR SMALL INDUSTRY DEVELOPMENT
IN TRANS-II PROJECTS

As a follow-up to the UNDP/OPE INS/79/001 Social Science Consultant's recent report on the conditions of the first Trans-II settlers in Kubang Ujo, a proposal is presented to engage two Indonesian village industry consultants from a non-government organization to plan and begin implementation of a small-scale industry program in Trans-II areas.

The Directorate General of Transmigration encourages development of home industry, and carried out some training in this field; the Department of Industry also provides some training and equipment to transmigration projects. Nevertheless, it is felt that greater emphasis should be placed on non-agricultural economic activities from the earliest stages of settlement. This is needed to bring in cash income to the village, to provide 'insurance' against crop failure, and to help provide a diverse range of goods and services within the project areas. Such a program would be particularly valuable in projects, such as Trans-II, with poor soil conditions that will probably provide very meagre incomes from food-crop agriculture.

Terms of Reference for the recommended consultants would include the following :

1. to review activities of the KanWil Transmigrasi, KanWil Perindustrian, KanWil Koperasi, Dinas Pertanian and other *relevant local agencies in promoting home industry development*;
2. to identify material resources available in the project area;
3. to identify skills available among the project settlers;
4. to identify needs and markets for products and services in the project area;

./.

5. to identify sources of capital, equipment and trainers, within the project area and elsewhere (e.g. from government departments, non-governmental organizations, etc.);
6. to initiate development of a number of small-scale industries;
7. to provide concrete, detailed plans for the development of other such industries;
8. to identify suitable types of management, where necessary;
9. to transfer ideas and methods of industry development to staff of the KanWil Transmigrasi, for use in other areas.

Reports on the work achieved, and future plans suggested, would be provided to other relevant agencies as well.

This program would be directed particularly towards those settlers with underutilized skills and to those who so far have been unable to obtain non-farming income and are most needy.

The rationale for requesting consultants from an Indonesian private voluntary organization is that many of them have had long experience with excellent results in the field of village industry development. They are capable of providing a fresh view of the problem and of bringing in a wide range of new ideas concerning village technology. In addition, they are usually oriented towards developing village self-help (swadaya) thus reducing dependence on the government. They also have experience in community organizational development, an important complement to home industry development. It is recommended that one of the consultants hired should have competence in this field and be prepared to become involved in such activity.

The two consultants should be hired immediately, and be prepared to work in Jambi for a year. The KanWil Transmigrasi could be requested to provide accomodation in the KanWil Complex in Bangko.

25 November, 1982.

Prepared by :
Tim Babcock, Social Science Consultant.
Nick Owens, Financial Economist.
UNDP/OPE INS/79/001

SMALL SCALE INDUSTRIAL DEVELOPMENT PROPOSAL
ESTIMATED COST

STAFF SALARIES

Field Staff :

Rp. 400,000/month x 12 months x 2 = Rp. 9,600,000

Project Secretary :

Rp. 200,000/month x 3 months = Rp. 600,000

Rp. 10,200,000

Social Charges

@ 10% of Base Salary = Rp. 1,020,000

Total Staff Salaries

Rp. 11,220,000

AIR TRAVEL

Mobilization - Jakarta/Jambi

Rp. 50,500 x 2 = Rp. 101,000

Demobilization - Jakarta/Jambi

Rp. 50,000 x 2 = Rp. 101,000

Consultation Visits - Jambi/Jakarta

Rp. 101,000 x 4 = Rp. 404,000

Total Air Travel

Rp. 606,000

GROUND TRAVEL

Purchase of motorcycles :

Rp. 1,000,000 x 2 = Rp. 2,000,000

Operating Expenses - Gas :

3 l/day x Rp. 220/l x 365 days x 2 = Rp. 481,800

Maintenance Expenses :

Rp. 30,000/month x 12 month x 2 = Rp. 720,000

Bus Travel - Jambi/Bangko :

Rp. 5,000/trip x 12 trips = Rp. 60,000

Total Ground Travel

Rp. 3,261,800

LIVING ALLOWANCE

Rp. 100,000/month x 12 months x 2 =

Rp. 2,400,000

COMMUNICATIONS

Rp. 200,000/month x 12 months

Rp. 2,400,000

REPORT PRINTING AND REPRODUCTION

Rp. 200,000/month x 12 months

Rp. 2,400,000

OFFICE SUPPLIES AND EQUIPMENT

Rp. 100,000/month x 12 months

Rp. 1,200,000

OFFICE RENTAL

Rp. 100,000/month x 12 months

Rp. 1,200,000

TOTAL PROPOSAL COST

Rp. 25,287,800

NO/ru
22/11/82

LAPORAN : Perkembangan Akhir Proyek
Way Abung I dan II.

A. Bidang Pertanian.

1. Bantuan sarana produksi pertanian :

Bantuan-bantuan saproten meliputi : Pupuk, obat-obatan dan -
Herbisyprayer; hal ini dimaksudkan untuk merangsang dari pada
kegiatan petani didalam usaha pertanian, bantuan untuk tanam
an keras juga diberikan : kelapa, cengkeh dan tanaman bush -
bush.

Bantuan pupuk didalam penyalurannya melalui KUD. sedang sa -
proten yang penyalurannya melalui : kelompok-kelompok tani,
hal ini dimaksudkan untuk sekali gus pembinaannya KUD/kelom -
pok tani yang ada dan sebagai jaring-jaring pembinaan/penyu -
luhan kepada petani.

Perlu ditambahkan bahwa penyaluran disesuaikan dengan waktu/
musim menjelang tanam.

2. Pengetrapan pola tanam A & C :

Sebagai hasil kerja sama dengan LP3. maka pola tanam A & C -
telah nampak perkembangannya, demikian pula proyek mengadakan
usaha-usaha untuk mempercepat berkembang ialah menyelenggara -
kan : Dem Plot.

Pola tanam A & C pada MT.1980/1981. seluas : 3,25 Ha : meli -
puti : 13 Unit Desa. Disamping itu pula kita selenggarakan -
Dem Plot. Pola tanam A & C dikelompok-kelompok tani seluas
30 Ha.meliputi 6 Unit Desa pola MT 1981/1982. Dilain pihak -
pada; Kelompok Tani dan Masyarakat dengan secara Swadaya.

3. Pembinaan/pengolahan pertanian.

Untuk peningkatan pembinaan dilaksanakan :

a. Systeem massal.

b. Systeem kunjungan ke pertemuan-pertemuan kelompok tani.

Untuk meningkatkan kemajuan dari pada kelompok tani dalam -
pengetrapan dan pemeliharaan pola tanam A & C diadakan : Temu
Karya dengan para pengurus kelompok tani, pamong Desa dan -
pengurus KUD.

4. Produksi pertanian pangan :

Hasil produksi ada kecenderungan bahwa masalah penyusutan dan
perawatan hama penyakit adalah sangat menonjol pengaruh -
nya. Dilain pihak bahwa pembinaan kelompok tani perlu diting -
katkan sebagai dinamisator usaha tani, juga mengadakan koor -
dinasi dengan pihak-pihak lain yang berkompetent untuk mem -
berikan bantuan/kredit usaha tani kepada petani misalnya me -
lalui BIKAS/INIKAS/KIK dsbnya. dalam meningkatkan kemampuan -
petani.

Serta pula meningkatkan pendayagunaan dari potensi yang ada misal : pupuk kandang/kompos/dan pemanfaatan sapi - sebagai tenaga kerja untuk memperluas lahan usaha taninya.

5. Income perkapita :

Didalam permasalahan income perkapita dari sebelum adanya Proyek bantuan IBRD. dan sesudahnya memang tampak - adanya peningkatan yang cukup berarti. Walaupun masih dibawah standart kecukupan baku.

Hal ini dalam kelanjutannyapositif berkembang, mengi - ngat banyak unsur-unsur lain tumbuh mendukung (tenaga kerja/sapi, pupuk kandang, tataniaga yang terus membaik /KUD., pasar, jalan komunikasi; disamping kesadaran dan kemampuan petani makin kelihatan mantap; ditambah pula: pengadaan irigasi (pengairan teknis).

B. BIDANG PETERNAKAN.

- Pelaksanaan DIP. untuk ternak sapi Proyek Way Abung I & II adalah tahun 1976 s/d 1982 dengan 7 tahap.
- Target bantuan Kredit adalah 5000 ekor sapi untuk 5000-KK. namun realisasi hanya 4237 ekor, dan waktu dropping mundur 1 (satu) tahun dari tiap-tiap kali dropping (data terlampir).
- Penyelenggaraan dan prosedur penyebaran penggadauhan - dengan Perjanjian Kredit Ternak yang berlaku yang dikeluarkan dari Direktorat Jenderal Transmigrasi Proyek Penempatan dan Persiapan Transmigran Sumatera Bagian Selatan.
- Penggadauhan kepada petani adalah (1) ekor, sapi betina atau sepasang (jantan dan betina) dengan persyaratan - teknis dan administratif yang telah ditentukan.

1. Bantuan gaduhan ternak sapi.

Dari pengambilan sample dari tiap-tiap Unit Desa bantuan gaduhan ternak sapi mempunyai arti ekonomis.

- a. Meningkatkan efisiensi /kemampuan tenaga petani dalam pengolahan tanah. Proyek Way Abung I & II sepasang - sapi dapat membajak 12 hari 1 (satu) hektar pada pembukaan lahan alang-alang.
- b. Memberikan keuntungan sampingan lainnya yaitu sebagai sumber protein dan sambungan hidup.
- c. Sebagai ternak pengangkutan .

Dapat untuk menarik gerobak, hal ini sangat membantu petani peternak dalam memasarkan hasil pertaniannya. Proyek Way Abung I & II, satu ekor sapi untuk menarik gerobak dengan muatan 4 Kwintal jarak \pm 8 Km.

d. Membentuk pupuk kandang.

Ternak sapi mudah dikumpulkan kotorannya (focces dan sisa-sisa makanan yang bercampur urine) pupuk kandang mengandung unsur yang dibutuhkan oleh tanah.

Satu ekor ternak sapi dalam waktu satu hari (24 jam) dapat menghasilkan 5 Kg. focces (berat basah). Dalam satu hektar memerlukan 2 - 3 ton pupuk kandang. Jadi satu ekor sapi untuk memupuk tanah (tanaman semusim) memerlukan waktu = $\frac{3000}{5} \times \frac{1}{30} = 20 \text{ bl/Ha.}$

2. Pendistribusian ternak sapi.

Ternak sapi didistribusikan diwilayah Way Abung I & II terdiri dari tiga Kecamatan yaitu :

1. Kecamatan Tulang Bawang Tengah.
2. Kecamatan Tulang Bawang Udik.
3. Kecamatan Abung Timur.

ad.1. Meliputi 6 Unit Desa :

- | | |
|------------------|-------------------|
| - Mulyo Asri | - Mulya Kencana. |
| - Pulung Kencana | - Tirta Kencana. |
| - Candra Kencana | - Panaragan Jaya. |

ad.2. Meliputi 8 (delapan) Unit Desa :

- | | |
|-----------------|-----------------|
| - Margo Mulyo | - Daya Murni |
| - Karta Raharja | - Kartasari |
| - M a k a r t i | - Daya Sakti |
| - Marga Kencana | - Kagungan Ratu |

ad.3. Meliputi 2 (dua) Unit Desa :

- | | |
|--------------|----------------|
| - Sido Mukto | - Bumi Raharja |
|--------------|----------------|

3. Bantuan sarana pelengkap.

Bantuan Kredit Ternak Sapi di Proyek Way Abung I & II telah dilengkapi sarana :

- | | |
|-------------------------|----------------|
| - Cattle Holding Ground | - Transit Farm |
| - Kandang Paksa | - Bull Unit |
| - Obat-obatan. | |

4. Pembinaan penyuluhan.

Untuk meningkatkan pemeliharaan ternak sapi para petani peternak transmigran sering diadakan pembinaan penyuluhan baik secara masal maupun secara kunjungan ke-rumah-rumah penggadu. Hal ini tujuannya untuk :

a. Menyebarkan informasi seperti misalnya :

- Penanaman rumput unggul dan cara penggunaannya untuk makanan ternak.
- Memperkenalkan jenis tanaman rumput baru tidak saja dapat tumbuh dengan baik tetapi juga memberikan hasil yang berlipat ganda pada rumput lapangan.
- Obat-obatan/faksinasi untuk pencegahan dan pemberantasan penyakit.
- Pembuatan kandang yang memenuhi syarat.
- Pemberian makanan konsentrat (tambahan).

- b. Mengajarkan ketrampilan.
- c. Mengusahakan fasilitas, seperti bajak, perang, cangkul d
- d. Menumbuhkan swadaya masyarakat.
- e. Memecahkan persoalan yang dihadapi para petani peternak transmigran.

Dalam mengadakan penyuluhan telah diberikan sarana fasilitas seperti :

- Alat transpot (sepeda motor) bagi petugas lapangan.
- Perlengkapan audio visual yang antara lain :
 - o Slide projector.
 - o Macam bahan contoh inseminasi buatan (Strow Fronen semen dsb.)
 - o Medical caid.
 - o Pemotong tanduk.
 - o Bordi no tang.

C. BIDANG PERKEBUNAN KARET.

I. Luas areal.

Areal yang dibuka untuk pertanaman karet, seluas 2500 Ha. dibuka mulai tahun tanam 1976/1977 sampai dengan tahun tanam 1980/1981. Areal yang dibuka untuk pertanaman karet diusahakan pada areal-areal yang diperkirakan tidak akan mendapatkan pengairan/irigasi teknis.

Luas areal seperti terlampir.

II. Pembinaan.

1. Seperti kita ketahui bahwa untuk menangani/mengelola karet ini perlu ketrampilan khusus bagi para transmigran penerima kebun karet, sehingga disamping penyuluhan yang bersifat teori juga dilaksanakan latihan ketrampilan untuk penyesuaian yang telah diikuti oleh petani/transmigran dari 7 Unit Desa yang bersangkutan.

2. Pengukuran kembali.

Untuk memantapkan/mengetahui areal yang telah ditanami karet maka telah diadakan pengukuran kembali untuk mengetahui batas-batas pemilikan per-orangan, hal ini dimaksudkan untuk mempermudah dalam pengelolaan hasil produksi nanti, disamping untuk memanfaatkan para transmigran tersebut. Didalam status hak pemilikan tanah atas dasar sertifikat yang telah ada pengukuran kembali telah dilaksanakan mulai bulan 8 - 9 - 1982, dahulu pada areal-areal yang pertanamannya sudah siap untuk disadap

3. Persiapan pengelolaan kebun karet.

Pada pertanaman karet tahun 1976/1977, pengelola ya seharusnya susah ditangani oleh para transmigran sendiri. Pada daerah-daerah tersebut dipersiapkan pengelolaan akan ditangani oleh KUD. setempat, baik itu - pengelolaan hasil maupun penyediaan sarana produksi - serta pembagian hasil usaha produksi. Untuk hasil-hasil produksinya nanti akan ditampung melalui PTP.X selama di daerah Way Abung belum memungkinkan didirikan-nya Pabrik karet.

III. Rencana pengelolaan lebih lanjut.

- Dalam penanganan pengelolaan karet, setelah diserahkan oleh PTP.X kepada transmigran. Penanganan selanjutnya oleh KUD. setempat yang mendapat bimbingan dari Proyek (Dit.Jend.Transmigrasi) bekerja sama dengan PTP.X.
- Untuk KUD. sampai sekarang ini yang menjadikan kesulitan adalah mencairkan modal kerja yang akan dipergunakan untuk pengelolaan tersebut, dan telah ditempuh jalan lewat FUSKUD.Propinsi Lampung tetapi sampai saat ini belum berhasil.

D. BIDANG KONSTRUKSI/BANGUNAN.

1. Sarana pendidikan :

Telah dibangun bangunan gedung : SMP, SMA, SPMA, dan gedung-gedung SD. beserta perlengkapannya.

2. Sarana pemerintahan Desa :

Telah dibangun : Kantor Unit Desa, Balai Desa, Gudang-2 Desa, Rumah-rumah dinas.

3. Sarana kesehatan :

Telah dibangun : Gedung Puskesmas, Poliklinik, BKIA, pos-kesehatan, WC, sumur pompa.

4. Sarana peribadatan :

Telah dibangun : Gereja, Rehabilitasi Masjid dan perlengkapannya antara lain : Kitab-kitab Alqur'an, Injil, dan buku-buku agama, peralatan kematian dsb.nya.

5. Sarana perikonomian :

Telah dibangun : Gedung-gedung KUD., pasar, Bank, dengan peralatannya.

6. Sarana keamanan :

Telah dibangun : Pos-pos/gardu-gardu penjagaan.

7. Sarana Komunikasi :

Telah dibangun : Gedung-gedung kantor Pos, Jalan, jembatan, Gorong-gorong.

E. BIDANG LAIN - LAIN.

1. Kondisi Umum.

- a. Masalah kependudukan, khususnya mengenai jumlah angkatan kerja cukup potensial disatu pihak untuk kerja padalahan usaha taninya, dilain pihak masih ada tenaga kerja yang terpakai pada perusahaan-perusahaan pertanian setempat.
- b. Masalah pendidikan, telah tersedianya lembaga pendidikan menengah atas kejuruan (SEMA) yang disediakan untuk mendorong kemajuan pertanian setempat dan pendidikan menengah atas umum (SMA) yang disediakan bagi remaja yang nantinya akan melanjutkan ke perguruan tinggi. Maka kiranya pendidikan dari tingkat dasar sampai dengan tingkat atas cukup mantap.
- c. Masalah kesehatan, dengan program KB. bahwa aseptor makin berkembang, demikian masalah sanitasi dengan ditunjang bantuan : WC dan sumur pompa, juga program peningkatan gizi ini kesemuanya berpengaruh pada kesehatan umum masyarakat dengan terbukti makin mengecilnya penyakit-2 yang timbul dalam masyarakat. Bahwa dilain pihak aparat kesehatan dan peralatan juga kelihatan semakin mantap.
- d. Masalah keamanan, bahwa gejala ini berkaitan dengan masalah kondisi perekonomian setempat dan dilain pihak dari pada aparat dan sistem keamanan. Bahwa keamanan bila ditinjau secara umum cukup mantap.
- e. Masalah sosial budaya, kiranya telah cepat tambah berkembang dengan terlihat jelas banyak tambah organisasi kemasyarakatan dalam berbagai aspek antara lain Organisasi kesenian, organisasi olah raga, organisasi sosial, organisasi pertanian baik dikalangan orang tua dan remaja, hal tersebut juga telah diberi bantuan antara lain mesin jahit, alat-alat olah raga dan sbg.nya.

2. Kondisi perekonomian :

- a. Koperasi Unit-Desa telah didorong untuk meningkatkan kemampuan dan peran sertanya dengan banyak bantuan kepada petani kita melalui KUD. Dalam peningkatan KUD. juga kita adakan latihan/kursus-2 misalnya : Masalah latihan pola tanam, pengelolaan sapi, karet dan sebagainya.

Bersambung ke hal 7.

b. Sarana perekonomian pasar juga telah kita sediakan -- pada tiap-tiap Unit Desa, namun didalam pengembangan pasar selanjutnya kiranya tampak pada Desa-desa tertentu hal ini disebabkan karena letaknya strategis baik ditinjau dari segi letaknya maupun sebagai daerah lintas.

Maka dapat dilihat bahwa daerah Way Abung I dan II -- yang tampak pesat kemajuannya adalah pasar-pasar : Tatakarya, Dayamurni, dan Mulya Asri.

c. Sarana komunikasi, kiranya cukup baik hal ini tampak menunjang kemajuan khususnya kemajuan perekonomian, -- dalam segi pemasaran hasil produksi-produksi pertanian.

3: Penghijauan.

Untuk mengembangkan dan kesejahteraan lingkungan hidup, maka program penghijauan telah dilaksanakan dengan tanaman : Lamtoro gung, kapuk randu, acasia, albizia dan sono keling.

Penghijauan jalan, dipakai acasia dan sono keling juga -- jenis tanaman lain untuk penghijauan perladangan.

F. P E N U T U P.

Demikianlah laporan yang kami buat, dan bersama kami-lampirkan data-data yang perlu, agar menjadikan periksa.

Pulungkencana, 20 Januari 1983.--

PIMPINAN BAGIAN PROYEK PEMBINAAN
& PENGEMBANGAN DESA TRANSIGRASI
WAY ABUNG I DAN II.

(ABDUL KARIM BA.)
NIP. 160004439.--

KEADAAN PERKEMBANGAN TERNAK SAPI.

- Dalam pelaksanaan DIP. ternak sapi Proyek Way Abung I & II adalah tahun 1976 s/d 1982, terdiri dari 7 tahap dengan -
Berita Acara penerimaan sejumlah : 4327 ekor.

Ras Bali : 1400 ekor.

Ras PO. : 2590 ekor.

Ras Brahman : 337 ekor.

Sebelum didistribusi mengalami kematian sejumlah 121 ekor.

yang terdiri Ras Bali : 109 ekor.

Ras PO. : 7 ekor.

Ras Brahman : 5 ekor.

Prosentase kematian pokok sebelum didistribusi=

$$\frac{121}{4327} \times 100 \% = 2,8 \%$$

- Persediaan sapi pokok yang didistribusikan mengalami pengurangan dari target yang telah diterima dengan jumlah =

4206 ekor. terdiri dari Ras Bali : 1291 ekor.

Ras PO. : 2583 ekor.

Ras Brahman : 332 ekor.

Kematian pokok sesudah didistribusikan sampai (akhir Desember 1982) 223 ekor. terdiri dari Ras Bali : 76 ekor.

Ras PO. : 107 ekor.

Ras Brahman : 40 ekor.

Prosentase kematian pokok dipenggalah $\frac{223}{4206} \times 100 \% = 5,3 \%$.

PENGEMBANGAN ANAK.

- Kelahiran dipenggalah berjumlah 1961 ekor.

Ras Bali : 877 ekor.

Ras PO. : 869 ekor.

Ras Brahman : 215 ekor.

Prosentase kelahiran (Bali, PO, Brahman).

$$\frac{1961}{3161} \times 100 \% = 62 \%$$

Prosentase kelahiran (Bali) = $\frac{738}{457} \times 100 \% = 161,4 \%$.

(dropping 1978).

Prosentase kelahiran (PO) = $\frac{867}{698} \times 100 \% = 124,2 \%$.

(dropping 1978).

Prosentase kelahiran (Brahman) = $\frac{215}{332} \times 100 \% = 64,7 \%$.

(dropping 1978).

Prosentase kelahiran (PO) = $\frac{2}{840} \times 100 \% = 0,2 \%$.

(dropping 1981).

Prosentase kelahiran (Bali) = $\frac{139}{834} \times 100 \% = 16,6 \%$.

(dropping 1981). (data terlampir)

- Kematian anak.

(di CHG. + Transit Farm + penggaduh) = 317 ekor.

terdiri - kematian dipenggaduh = 78 ekor.

- kematian CHG. + Transit Farm = 239 ekor.

Prosentase kematian anak.

(CHG. + Transit Farm + penggaduh) = $\frac{317}{1961} \times 100 \% = 16 \%$.

- Sampai akhir Desember 1982 sapi lunas (milik penggaduh) sejumlah 346 ekor. Yang terdiri dari :

Ras Bali : 234 ekor.

Ras PO. : 99 ekor.

Ras Brahman : 9 ekor.

Prosentase sapi lunas (milik penggaduh)

Ras Bali : $\frac{234}{457} \times 100 \% = 51 \%$.

Ras PO. : $\frac{99}{698} \times 100 \% = 14 \%$.

Ras Brahman : $\frac{9}{332} \times 100 \% = 2,7 \%$.

Prosentase sapi lunas (milik penggaduh)

(Bali, PO, Brahman) = $\frac{346}{1487} \times 100 \% = 23 \%$.

Prosentase sapi lunas ini merupakan prosentase ras (Bali, PO, Brahman) dropping 1978.

Kadaan ternak sapi yang ada di Proyek (Ras Bali, PO, Brahman)akhir Desember 1982.

- Sapi pokok = 3966 ekor.

- Setoran (anak) yang didistribusikan = 1128 ekor.

- Anak dipenggaduh = 420 ekor.

- Transit Farm + CHG. = 94 ekor

Jumlah = 5608 ekor.

(data terlampir).

KANTOR WILAYAH
DIREKTORAT JENDERAL TRANSMIGRASI
PROVINSI LAMPUNG

DAFTAR : POPULASI TERMAK SAJI DARI TIAP-TIAP UNIT DESA
DI WAY ABUNG I DAN II.
BULAN : DESEMBER 1982.

KABUPATEN		P O K O K		P E R K E M B A N G A N - A N A K												M I L I K P E M B A N G A N	
LAMPUNG UTARA		R A S		Y A N G D I D I S I M P A N I K A N												M I L I K P E M B A N G A N	

TABEL I : PENEMPATAN POKOK DAN PERKEMBANGAN TRANSMIGRASI

No.	UNIT DESA	AREAL BAKU (Ha.)	TAHUN PENEMPATAN	PENEMPATAN POKOK		PERKEMBANGAN		JENIS TRANSMIGRASI
				K. K I J I W A	K. K I J I W A	K. K I J I W A	K. K I J I W A	
I. KOORDINATOR WAY ABUNG I. :								
1.	SIDO MUKTI	1.169	71/72/73	475	2.308	564	3.877	TU. NPS.
2.	BUMI RAHARJA	954	74/75	359	1.442	467	2.877	TU. NPS.
3.	BUMI AGUNG	1.000	74/75	300	1.200	320	1.489	TU. NPS.
II. KOORDINATOR I WAY ABUNG II. :								
1.	DAYA SAKTI	2.554	69/70	800	3.922	599	3.818	TU. NPS.
2.	M A K A R T I	1.600	72/73	665	2.832	814	4.197	TU. NPS.
3.	DAYA MURNI	2.000	71/72	762	3.659	1.291	8.204	TU. NPS, INT. ABRI, TSP. DBB.
4.	MARGA KENCANA	1.500	73/74	510	2.838	5.512	2.955	EX. GUNUNG BALAK, TSP. DBB.
5.	KARTA RAHARJA	2.000	73/74	455	2.021	909	5.279	TSP. GUNUNG BALAK II, TSP. TBB/FAM.
6.	KARTA SARI	450	73/74	216	877	299	1.585	TSP. GUNUNG BALAK II/
7.	KAGUNGAN RATU	2.000	73/74	616	2.894	659	3.774	INT. ABRI, TSP. DBB.
8.	MARGO MULYO	1.500	72/73	751	3.320	859	5.040	TU. NPS, TSP. DBB.
III. KOORDINATOR II WAY ABUNG II. :								
1.	PANARAGAN JAYA	2.000	73/74	668	2.999	864	4.552	TU. INT, ABRI, TSP. GUNUNG BALAK I, TSP. EG.
2.	TIRTA KENCANA	1.700	73/74	797	3.657	883	4.227	INT. ABRI, TSP. GB. I, TSP. GB. II.
3.	MULYA KENCANA	2.000	73/74	758	3.664	909	4.422	INT. ABRI, TSP. GB. I, TSP. TBB/FAM.
4.	PULUNG KENCANA	1.175	73/74	575	2.542	671	3.551	TU. NPS, INT. ABRI, TSP. GB. II, TSP. DBB.
5.	CANDRA KENCANA	2.000	73/74	589	2.894	751	4.502	INT. ABRI, EX. GUNUNG BALAK, TSP. GB. I, TSP. DBB, TSP. TBB.
6.	MULYA ASRI	3.150	72/73/74	746	3.532	988	5.150	TU. NPS, INT. ABRI, TSP. GB. I, TSP. GB. II, TSP. DBB, TSP. TBB.
7.	PENUNGANAN BARU	2.075	73/74/75	779	2.156	483	2.896	T.T.K.
I J U M L A H								
		32.492	69 s/d. 75	110.821	48.557	12.842	72.395	

TABEL II : STRUKTUR PENDUDUK MENURUT PENGOLONGAN
UMUR DAN JENIS KELAMIN.

KABUPATEN : LAMUNG UTARA.

PROVINSI : TRANSJAWA MAY ATUNG I & II.

No.	UNIT DESA	U M U R / T A H U N																				Jumlah	KETERANGAN	
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 80	81 - 85	86 - 90					
		L	P	L	P	L	P	L	P	L	P	L	P	L	P	L	P	L	P					
I. KECAMATAN MAY ATUNG I.																								
1.	SEKOTONTI	1302	1244	1315	1316	208	1273	1175	1148	160	145	134	1551	143	1481	177	140	160	1148	109	197	11953	11914	3.877
2.	BUKITBARAJA	1314	1301	1306	1328	128	1138	1142	176	167	125	89	691	91	701	92	72	93	66	64	146	11436	11391	2.877
3.	SEKOTONG	140	128	104	196	109	1100	64	67	66	65	99	891	89	871	80	83	70	87	32	136	1747	1742	1.487
II. KECAMATAN II MAY ATUNG II.																								
1.	DAYA SAKTI	1309	1276	1306	1306	201	1234	1190	190	191	192	183	1521	106	1311	193	130	81	1130	75	182	11995	11823	3.816
2.	DAYA SAKTI	1382	1357	1301	1397	1355	1331	1365	212	199	191	180	1721	118	1521	72	102	73	1165	42	131	12037	12110	4.197
3.	DAYA SAKTI	1563	1534	1374	1392	1397	1393	1292	1207	1265	1498	1479	14001	694	6551	639	605	200	1267	215	185	14183	14016	8.204
4.	DAYA KECAMATAN	1203	1202	1243	1259	1242	1207	1171	162	108	117	104	1051	71	1091	103	1144	165	1108	142	180	11552	11403	1.955
5.	DAYA KECAMATAN	1479	1390	1342	1291	1327	1311	1319	1324	1293	1351	1315	12471	142	1361	231	193	150	1176	176	1151	12704	12575	5.279
6.	DAYA SAKTI	162	143	115	1125	178	1137	1057	33	83	115	105	1091	36	271	87	69	46	37	37	24	806	7791	1.585
7.	SEKOTONG RAYU	1258	1256	176	1144	1353	1435	1134	103	261	269	1470	14001	76	431	59	46	86	73	64	671	1978	11335	3.774
8.	SEKOTONG RAYU	1442	1418	1428	1461	1338	1409	1201	1230	1210	1239	179	1531	179	1571	230	155	230	1156	110	1115	12547	12493	5.740
III. KECAMATAN III MAY ATUNG II.																								
1.	SEKOTONG RAYU	1270	1269	1375	1337	1365	1205	1275	1235	1228	1226	1296	12071	106	1161	165	159	112	1107	1324	11731	12516	12036	4.552
2.	SEKOTONG RAYU	1273	1308	1377	1363	1305	1255	1237	1188	149	200	149	14971	155	1941	187	135	162	81	219	891	12218	12109	4.227
3.	SEKOTONG RAYU	1329	1312	1321	1293	1266	1220	1235	1245	1238	1227	1257	12731	252	12321	140	132	75	56	159	11601	12272	12150	4.402
4.	SEKOTONG RAYU	1307	1325	1127	1141	1374	1355	192	1109	1143	1203	90	1351	124	11081	175	164	80	43	213	12031	11725	11826	3.551
5.	CANDRA KECAMATAN	1332	1315	1362	1376	1311	1312	1243	1265	1182	1192	1199	12021	135	1431	120	128	120	1112	178	12751	12132	12320	4.502
6.	SEKOTONG RAYU	1394	1380	1447	1465	1318	1324	1272	1246	1296	1221	1229	12501	196	12041	213	163	218	1149	178	971	12651	12499	5.150
7.	SEKOTONG RAYU	1117	1234	1152	1227	1110	1113	1200	1138	1305	1300	1290	12751	158	11381	85	42	68	37	50	571	11535	11361	2.396

KETERANGAN :

5-9

10.466

10-14

9847

71.345

KANTOR WILAYAH
DIREKTORAT JENDERAL TRANSMIGRASI
PROVINSI LAMPUNG

TARGET DAN REALISASI PENANAMAN KARET
PROYEK WAY ABUNG I DAN II
BULAN : 1982.

No	UNIT DESA	TAHUN TANAM	TARGET AREAL/ HA	REALISASI AREAL/HA	JUMLAH /KK CALON PENERIMA	KETERANGAN
1.	Kerta Raharja	1976 / 1977		172,7	314	Tiap KK = 0,50 Ha.
2.	Marga Kencana Lokasi I	1976 / 1977	300	32,3	21	Tiap KK = 0,50 Ha.
	Marga Kencana Lokasi II	1977		75,4		
3.	Panaragan Jaya Lokasi I	1977 / 1978	400	387,1	761	Tiap KK = 1,0 Ha.
	Panaragan Jaya Lokasi II	1978 / 1978	800	373		Tiap KK = 1,0 Ha.
4.	Pemutangan Baru	1978 / 1978		406	406	Tiap KK = 1,0 Ha.
5.	Tirta Kencana	1980 / 1981	500	429	345	Tiap KK = 1,0 Ha.
6.	Mulya Kencana	1980 / 1981	250	298	32	Tiap KK = 1,0 Ha.
7.	Kagungan Ratu	1980 / 1981	250	236	286	Tiap KK = 1,0 Ha.
J U M L A H			2.500	12.500		

CATATAN. :

- Areal tahun tanam 1976 / 1977 s/d. 1978/1979 tidak mencapai target, disebabkan waktu dan areal tidak mencukupi.
- Areal tahun tanam 1980/1981, target keseluruhan terpenuhi dan - menambah kekurangan tahun yang lalu.

PULUNG KENCANA, 26 Januari 1983.
BIDANG PERKEBUNAN KARET,

(SRI SAPARTO BSc)-.

UNIT DESA	TANAMAN KERAS										PERKERUANAN KARET (Lihat daftar Karet)										JUML	JUML		
	KELAPA		ICENGKEH		JERUK		RAMBUTAN		TANGKIL		ISAWO		APOKAT		DUAS TARGET		REALISASI TANAM (TAHUN)							
	Ha	Bt	Ha	Bt	Ha	Bt	Ha	Bt	Ha	Bt	Ha	Bt	Ha	Bt	176/77	177/78	178/79	179/80	180/81	81 / 82			82 / 83	Ha
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-

I. KOORDINATOR WAY ARUNG I.

1. SIDOMUKTI	1	-	1101751	-	197851	-	126901	-	12785	1	-	1	-	1	16	1	-	1	10	1	1	1	1	1
2. BUMI RAHARJA	1	-	170611	-	132471	-	15001	-	1550	1	-	1	-	1	17	1	-	1	24	1	1	1	1	1
3. BUMI AGUNG	1	-	15272	1	-	151831	-	115811	-	13191	1	-	1	-	1	111	-	1	13	1	1	1	1	1

II. KOORDINATOR I WAY ARUNG II.

1. DAYA SAKTI	1	-	12925	1	-	117791	-	111981	-	12396	1	-	1	-	1	1	-	1	1	1	1	1	1	1
2. MAKARTI	1	-	1149551	-	114527	-	174771	-	1111	1	-	1	-	1	1161	1257	1	1	1	1	1	1	1	1
3. DAYA MURNI	1	-	1108931	-	193781	-	123971	-	11382	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4. MARGO KUNCANO	1	90	1	87261	-	197631	-	1951	1	-	1	1643	1	1	50	1	1	1	2	1	1	1	1	1
5. KARTA RAHARJA	1	3	1	350012	135001	8	110001	9	11000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6. KARTA SARI	1	4	1	516	1	2	1	3341	1	1	741	2	1	103	1	1	1	1	1	1	1	1	1	1
7. KARTUNGAN RITU	1	54	1	-	1	1581	-	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8. MARGO MULYO	1	-	1	133941	-	1171151	-	14091	-	12651	1	1	25	1	1151	1	1	1	1	1	1	1	1	1

III. KOORDINATOR II WAY ARUNG II.

1. PANARAGAN JAYA	1	156	1	1109431	1881	126671	1891	20491	97	12669	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. TIRTA KUNCANA	1	150	1	1102251	1601	7080	1871	22031	125	14426	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3. MELIA KUNCANA	1	143	1	1143701	401	4790	10,751	11001	41	14100	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4. PULUNG KUNCANA	1	156	1	17512	1	1661	2350	1	421	13161	86	1282	1	4	1	1581	1	51	1	1	1	1	1	1
5. CANDRA KUNCANA	1	185	1	1180001	1831	1147501	251	36001	50	14500	1	1	1	1	51	1	15	1	1	1	1	1	1	1
6. MELIA ASRI	1	90	1	1121771	871	1109501	171	17091	15	13008	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7. PENYAGAN BARU	1	15	1	120501	151	20501	-	1	-	115	12030	1	1	1	1	1	1	1	1	1	1	1	1	1

KETERANGAN .

TABEL 3 : LUAS AREAL DAN PRODUKSI.

TANAMAN : PADI, PALAWIJA, KACANG-KACANGAN DAN SAYURAN.

KABUPATEN : LAMPUNG UTARA.

PROVINSI : TRANSJAWA WAY AHUNG I & II.

No.	UNIT DESA	Padi sawah pengairan		Padi sawah tadah hujan		Padi ladang gogo		Jagung		Ubi kayu		Ubi jalar		Kacang tanah		Kacang kedelai		Kacang hijau		Sayur-sayuran		
		Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	Ha.	Ton	
I. KECAMATAN I MAYAHUNG I.																						
1.	Diklati	-	-	-	-	469	395,25	205	153,75	430	4300	3	2,75	26	14,25	15	6,25	10	3,50	7	2,5	
2.	Duri Baharja	-	-	-	-	675	675	80	120	410	3690	-	-	60	45	-	-	-	-	68	36	
3.	Duri Agas	-	-	-	-	532	532,43	20	35,50	1772	18900	4	3,50	6	2,50	1	0,82	1,3	4,90	-	-	
II. KECAMATAN II MAYAHUNG II.																						
1.	Dayasakti	-	-	-	-	385	244	184	123	385	3300	4	15	35	18,2	15	6,5	9	3,20	-	-	
2.	Daya Hirai	-	-	-	-	426	341	151	4,50	640	2560	6,50	8	105	8,4	-	-	4	2,50	7	3	
3.	Makarti	-	-	-	-	352	281,61	70	18	655	1572	15	9,25	15	7,5	5	2,5	25	11	2	1	
4.	Karya Kencana	6	-	-	-	575	660	250	17	575	747	1	2,76	10	4,9	5	1,50	5	1,1	50	1	
5.	Karta Baharja	-	-	-	10	15	721	300	9	721	2274	2	4	12	24	-	-	2	3	2	4	
6.	Kartasari	-	-	-	-	100	50	25	0,25	75	450	1	2	3	6	1	0,5	0,25	0,4	1	0,7	
7.	Kagungan Batu	-	-	-	20	60	391	17	5,1	453	2290	-	-	25	20	5	2	5	1,50	4	6	
8.	Karya Mulyo	-	-	-	12	12	723,5	100	100	723,5	3615	-	-	-	-	-	-	5	4	-	-	
III. KECAMATAN II MAYAHUNG II.																						
1.	Panoragan Jaya	-	-	-	8	12	465	265	69,5	673	3365	3	6	1	0,4	-	-	-	-	1	0,7	
2.	Pirta Kencana	-	-	-	10	20	475,5	368	73,6	524,4	1121,15	-	-	1	0,5	-	-	-	-	1	0,6	
3.	Mulya Kencana	-	-	-	-	-	274,5	371,5	12,9	593,1	5590	-	-	3	0,67	-	-	-	-	2	0,9	
4.	Pulung Kencana	-	-	-	-	-	397	101,1	68,96	473	3052,4	-	-	8,1	3,34	-	-	-	-	1	0,4	
5.	Sandra Kencana	-	-	-	-	-	600	175	35	360	3600	-	-	3	0,3	-	-	-	-	1	0,5	
6.	Pemirangan	-	-	-	-	-	550	4	1,50	4	15	10	3	3	1	-	-	-	-	4	1,5	
7.	Mulyo Asri	-	-	-	-	-	653	14	9,8	750	3750	-	-	-	-	-	-	-	-	1	0,4	
Jumlah		4	60			8764,5		2564,60		8707,22		49,5		326,1		46		67,55		44		
		-				119		8073,86		857,61		65141,55		56,26		156,96		33,57		35,10		59,5

KETERANGAN :

TABEL 4 : DATA ALAT-ALAT PERTANAHAN/PROCESSING/TEKNIKIS
KABUPATEN 1 KABUPATEN UTARA
PROJEK : TRANSIGRASI WAY ABUNG I & II.

NO. 1	UNIT DATA	HAND TRAKTOR (BUAH)	HAND SPRAYER (BUAH)	MIST BLOWER (BUAH)	RICE MILL (BUAH)	CONN SHELLER (BUAH)	CUTTING MACHINE (BUAH)	ICIRAN/SPINILL (BUAH)	KETERANGAN					
I. 1 KOTA ABUNG I WAY ABUNG I :														
1. 1	JOJO SAKTI	1	-	1	8	1	-	1	2	1	-	1	-	1
2. 1	JOJO SAKTI	1	-	1	15	1	-	1	1	1	-	1	-	1
3. 1	JOJO SAKTI	1	-	1	21	1	-	1	-	1	-	1	-	1
II. 1 KOTA ABUNG I WAY ABUNG II :														
1. 1	JOJO SAKTI	1	-	1	14	1	-	1	5	1	-	1	-	19
2. 1	JOJO SAKTI	1	-	1	32	1	-	1	1	1	-	1	-	1
3. 1	JOJO SAKTI	1	-	1	-	1	-	1	4	1	-	1	-	1
4. 1	JOJO SAKTI	1	-	1	16	1	-	1	2	1	-	1	-	1
5. 1	JOJO SAKTI	1	-	1	15	1	-	1	-	1	-	1	-	1
6. 1	JOJO SAKTI	1	-	1	5	1	-	1	-	1	-	1	-	1
7. 1	JOJO SAKTI	1	-	1	10	1	-	1	-	1	-	1	-	1
8. 1	JOJO SAKTI	1	-	1	12	1	-	1	1	1	2	1	-	1
III. 1 KOTA ABUNG II WAY ABUNG II :														
1. 1	JOJO SAKTI	1	-	1	25	1	-	1	-	1	-	1	-	1
2. 1	JOJO SAKTI	1	-	1	10	1	-	1	-	1	-	1	-	1
3. 1	JOJO SAKTI	1	-	1	13	1	-	1	3	1	-	1	-	1
4. 1	JOJO SAKTI	1	-	1	25	1	-	1	4	1	5	1	-	1
5. 1	JOJO SAKTI	1	-	1	22	1	-	1	2	1	-	1	-	1
6. 1	JOJO SAKTI	1	-	1	47	1	-	1	5	1	1	1	-	1
7. 1	JOJO SAKTI	1	-	1	7	1	-	1	-	1	-	1	-	1
J U M L A H										1	-	1	-	1

KETERANGAN :

TABEL 5 : DATA KAKAYAN TRANSIGRAN.

KABUPATEN : LAMPUNG UTARA

KROK : TRANSIGRASI WAYABUNG I & II.

NO. 1	UNIT DUA	SEKOTA OTOR	SEKOTA	INSIH JAHIT	RADIO	TAPE RECORDER	LAMPU PENGAKI	JAM DINDING	PERONTAS SUARA	T.V.	MOBIL	K. T. R. R. R.											
I. I KECAMATAN I WAYABUNG I :																							
1. I LING I	1	8	115	6	35	40	250	10	8	7	2	1											
2. I BU I SARAJA	1	2	194	9	76	7	296	1	2	2	-	1											
3. I BU I SARAJA	1	4	97	7	84	4	116	2	1	3	3	1											
II. I KECAMATAN II WAYABUNG II :																							
1. I KAKA LING I	1	12	107	8	102	56	315	3	1	6	9	1											
2. I KAKA LING I	1	11	58	7	42	6	309	1	4	6	1	1											
3. I KAKA LING I	1	22	300	25	146	135	320	33	9	14	10	1											
4. I KAKA LING I	1	5	207	15	160	14	200	2	2	5	1	1											
5. I KAKA LING I	1	4	146	10	96	15	600	3	5	6	-	1											
6. I KAKA LING I	1	-	108	5	77	2	25	-	1	1	-	1											
7. I KAKA LING I	1	8	175	14	80	10	350	1	2	6	1	1											
8. I KAKA LING I	1	6	220	9	104	76	120	3	1	7	-	1											
III. I KECAMATAN III WAYABUNG III :																							
1. I KAKA LING I	1	30	309	63	260	50	600	5	4	65	5	1											
2. I KAKA LING I	1	7	160	18	87	17	106	1	10	8	-	1											
3. I KAKA LING I	1	15	356	18	185	22	355	6	5	10	3	1											
4. I KAKA LING I	1	12	312	24	24	36	135	4	2	22	1	1											
5. I KAKA LING I	1	14	215	15	145	13	327	5	3	12	2	1											
6. I KAKA LING I	1	21	324	120	261	215	1200	52	7	25	3	1											
7. I KAKA LING I	1	5	85	5	65	25	360	-	2	4	-	1											
J U M L A H													186	3700	378	2049	748	5994	132	69	209	31	1

T A B E L : 6 : DATA KOPERASI UNIT DESA.

KAWUPATIH : LAMPUNG UTARA.

REMIK : TRANSMIGRASI WAY ABUNG I & II.

No.	UNIT DESA	NAMA KOPERASI	S T A T U S			MODAL KERJA					Jumlah Modal (Rp.)	KETERANGAN
			BADAN HUKUM	TINGGAL BERNAMA	USAHA KOPERASI	Jumlah Anggota (Orang)	SI PAN POKOK (Rp.)	SI PAN RAJIB (Rp.)	SI PAN SUMBAGA (Rp.)			
I. KOPERASI WAY ABUNG I.												
1.	Sido Manti	-	-	-	Serba Usaha	541	500	50	-	507.000		
2.	Dudi Raharja	-	-	-	Serba Usaha	350	1000	50	-	350.000		
3.	Dudi Agung	-	-	-	Serba Usaha	80	500	100	-	240.000		
II. KOPERASI I WAY ABUNG II.												
1.	Daya Sakti	Romaja	137/BN/0/72-A	19-2-74	Serba Usaha	309	100	100	-	155.350		
2.	Harjo P a r t i	Maharti	227/BN/0/74	20-7-74	Serba Usaha	450	1500	300	-	700.000		
3.	Daya Murni	Dayamurni	1223/BN/0/71	25-5-74	Serba Usaha	417	500	50	700	1.403.000		
4.	Harjo Kencono	Tri Karya	226/BN/0/74-A	12-3-70	Serba Usaha	614	729.100	620.050	1.325.543	2.306.505		
5.	Karta Raharja	Timbul Baru	279/BN/0/76	2-3-76	Serba Usaha	124	250	25	37.500	3.500.000		
6.	Karta Sari				Serba Usaha							
7.	Harjoan Batu				Serba Usaha	25	10.000	250	-	400.000		
8.	Harjo Mulyo		199/BN/0/74	6-12-73	Serba Usaha	412		7.730	3.500	250.000		
III. KOPERASI II WAY ABUNG II.												
1.	Pakaragan Jaya	Pajar Jaya	020/KPE/BN/0/75	25-8-74	Serba Usaha	839	220		-	2.050.000		
2.	Sirta Kencono	Tirtakencono			Serba Usaha	500	2500	250	100	9.219.700		
3.	Mulya Kencono	Kencono Jaya	200/KY/76		Serba Usaha	803	730.000	359.500	160.070	2.032.000		
4.	Pulang Kencono	Pulangkencono	250/BN/0/75		Serba Usaha	665	43.000	2.150	-	45.150		
5.	Candra Kencono	Candrakencono	230/BN/0/75		Serba Usaha	493	176.000	15.900	45.000	35.000		
6.	Mulya Asri	Pajar Jaya	240/BN/0/74		Serba Usaha	215	215.000		-	405.000		
7.	Pemungangan Baru				Serba Usaha							
J U M L A H												
						6.917						

KETERANGAN :

PROJEK : TRANSFORMASI MASYARAKAT I & II.

[illegible]

KEYWORDS :

T A B E L 7b DATA SMTA/ SMTA.

KABUPATEN : LAMPUNG UTARA.

PROYEK : TRANSMIGRASI WAY ABUNG I & II.

UNIT DESA	Jumlah LOKAL	JUMLAH KELAS DAN JUMLAH MURID										TENAGA PENGAJAR GURU										
		Klas I		Klas II		Klas III		Jumlah		Pegawai Honor		Sukarel		Jumlah Murid		Besarnya						
		Klas	KANT	JUMLAH	L	P	Jumlah	L	P	Jumlah	L	P	Jumlah	L	P	Jumlah	L	P				
		Unit		Klas		Klas		Klas		Klas		Klas		Klas		Klas		Klas				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
I. KOORDINATOR WAY ABUNG I.																						
1. SIDA MUKTI																						
2. BUDI RAHARJA																						
3. BUDI AGUNG																						
II. KOORDINATOR I WAY ABUNG II.																						
1. DATA SAKTI																						
2. MAZARTI																						
3. DATA MURNI	1	6	2	80	59	121	79	54	25	58	41	117	247	154	63	11	9	154	63			
4. MARGA KENCANA																						
5. KARTA RAHARJA																						
6. KARTA SARI																						
7. KATUNGAN BATU																						
8. MARCO MULYO																						
III. KOORDINATOR II WAY ABUNG II.																						
1. PANARAGAN JAYA																						
2. TIRTA KENCANA																						
3. PULUNG KENCANA	1	8	1	84	170	114	80	70	110	76	169	171	240	209	31	-	13	5	209	31		
4. MULYA KENCANA																						
5. CANDRA KENCANA																						
6. MULYA ASRI																						
7. PENUNGGAN BARU																						
J U M L A H	2	14	3	164	1129	135	159	1124	35	134	1110	1241	457	363	94	-	24	14	363	94		

KETERANGAN :

TABEL 8a : S. M. T. P

KABUPATEN : LAMPUNG UTARA

PROYEK : TRANSIGRASI WAY ATUNG I & II.-

UNIT DESA	JUMLAH KELAS DAN JUMLAH MURID												TENAGA PENGAJAR/GURU		PEGAWAI HONOR		HONOR		JUMLAH MURID		KETERANGAN										
	JUMLAH KELAS DAN JUMLAH MURID												PEGAWAI		HONOR		HONOR		JUMLAH MURID												
	JUMLAH KELAS DAN JUMLAH MURID												PEGAWAI		HONOR		HONOR		JUMLAH MURID												
	L	P	L	P	L	P	L	P	L	P	L	P	L	P	L	P	L	P	L	P	L	P									
I. KORDINATOR WAY ATUNG I. :																															
1. SIDI MERTI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
2. PUNI SARAJA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
3. PUNI AGUNG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
II. KORDINATOR I WAY ATUNG II. :																															
1. DAYA SANTI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
2. I A K A R T I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
3. DAYA MERTI	1	11	1	14	1	8	1	212	92	120	258	153	105	1	144	1103	41	166	348	266	25	-	1	32	1	348	1	266	1		
4. MARCA KONGANA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
5. KARTA SARAJA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
6. KARTA SARI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
7. KARTI KARTU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8. MARCO MULYO	1	-	1	-	1	-	1	23	20	3	-	-	-	-	1	-	-	-	-	23	20	3	-	-	1	11	1	20	1	3	1
III. KORDINATOR II WAY ATUNG II. :																															
1. PAMPAGAN JAYA	1	3	1	9	1	1	1	89	59	30	111	63	48	1	94	1	52	42	294	174	120	-	1	15	1	-	1	174	1	120	1
2. TIRGA KONGANA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3. PULUNG KONGANA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. WILHA KONGANA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5. GANDRA KONGANA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6. WILHA ASRI	1	1	1	6	1	1	1	180	101	79	91	61	30	1	78	1	42	36	1	349	204	145	12	-	1	2	11	204	1	145	1
7. PE PANGAN BAKU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J U M L A H	1	15	1	29	1	10	1	504	1272	232	1360	1277	183	1	316	1197	119	11280	746	534	37	1	15	1	45	1	746	1	534	1	1

TABEL 9 : DATA PENDUK AGAMA.

KADUPATEN : LAMPUNG UTARA.

PROYEK : TRANSFORMASI WAKATUNG I & II.

No.	UNIT DESA	ISLAM										PROTESTAN		KATHOLIK		HINDU		BUDHA		KETERANGAN
		TEMPAT	PEMUKA	SEKOLAH	PENJIM-IT	TEMPAT	PENGANUT	PENJIM-IT	TEMPAT	PENGANUT	PENJIM-IT	TEMPAT	PENGANUT	PENJIM-IT	TEMPAT	PENGANUT	PENJIM-IT	TEMPAT	PENGANUT	
		IRADAH	AGAMA	BING	IRADAH	BING	IRADAH	BING	IRADAH	BING	IRADAH	BING	IRADAH	BING	IRADAH	BING	IRADAH	BING	IRADAH	
I. KORDINATOR WAKATUNG I.																				
1.	Sido Mukti	12	3730	-	12	2	161	1	-	-	-	-	-	-	2	-	-	2	-	
2.	Budi Baharja	11	2768	1	18	-	3	-	1	126	-	-	-	-	-	-	-	-	-	
3.	Budi Agung	3	1456	-	7	-	-	-	1	31	4	-	-	-	-	-	-	-	-	
II. KORDINATOR II WAKATUNG II.																				
1.	Daya Sakti	8	3571	-	8	1	99	1	-	62	1	-	-	-	7	-	1	65	1	
2.	Ma k a r t i	27	3985	1	27	3	175	3	7	-	-	-	-	-	-	-	-	-	-	
3.	Daya Murni	19	6695	1	20	3	133	3	1	135	1	1	55	1	-	-	-	-	-	
4.	Marga Kencana	9	3139	-	-	-	-	-	1	110	1	-	-	-	-	-	-	-	-	
5.	Marta Baharja	9	4341	1	5	4	720	5	1	160	1	-	8	-	-	-	-	-	-	
6.	Martasari	6	1620	1	5	-	-	-	-	-	-	-	-	-	-	-	-	24	-	
7.	Masangan Ratu	15	3738	1	6	2	125	1	1	47	1	-	-	-	-	-	-	-	-	
8.	Marga Sulyo	13	4564	1	3	1	204	3	1	250	4	-	-	-	-	-	-	-	-	
III. KORDINATOR II WAKATUNG II.																				
1.	Sanarogan Jaya	18	4414	1	5	1	136	1	1	98	1	-	-	-	-	-	-	2	-	
2.	Birta Kencana	15	3570	-	8	4	500	3	-	-	-	-	1	153	1	-	-	-	-	
3.	Sulya Kencana	16	4924	-	16	1	53	1	1	112	1	-	-	-	-	-	-	54	1	
4.	Pilung Kencana	10	3218	1	14	1	194	1	1	40	1	-	18	1	-	-	-	-	-	
5.	Candra Kencana	15	4639	-	15	2	215	2	2	64	1	-	-	-	-	-	1	62	1	
6.	Sulyo Asri	11	7218	-	17	1	89	3	1	58	2	-	24	-	-	-	-	8	-	
7.	Pemunggan	5	1890	-	5	-	4	-	-	-	-	-	-	-	-	-	-	-	-	
J U M L A H		222	69480	9	189	26	2811	28	19	1293	16	2	267	3	2	219	3	1	1	

KETERANGAN :

T A B E L 10 : DATA KESIHATAN

KA DUPAKEN : LAMPUNG UTARA.

PROYEK : TRANSMIGRASI WAY ABUNG.

	JULIAH	TERIMA GA KEDIS DA N	DOKUM I AGENT-IZINGUN	KAWAN DAN	PENYAI	VAKSINASI	KETERANGAN
UNIT DESA	PA RA KEDIS	PA RA KEDIS	PA RA KEDIS	PA RA KEDIS	PA RA KEDIS	PA RA KEDIS	PA RA KEDIS
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
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	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
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	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)
	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)	(ORANG)

I. KAWAN DAN AGENT I.

1. Sido Muli	1	-	1	-	1	-	1	1	1	1	1	1	1	4	1	7	1	303	1	-	1	-	1	-	1	-	1	-	1
2. Sari Rakerja	1	-	1	1	1	-	1	-	1	-	1	-	1	-	1	5	1	209	1	-	1	-	1	-	1	2	1	4	1
3. Sari Agung	1	-	1	1	1	-	1	-	1	-	1	-	1	-	1	1	1	102	1	-	1	-	1	-	1	-	1	-	1

II. KAWAN DAN AGENT II.

1. Daya Sakti	1	-	1	1	1	-	1	-	1	4	1	-	1	-	1	1	592	1	98	1	-	1	-	1	-	1	-	1	-	1
2. Daya Bumi	1	1	1	-	1	-	1	1	1	1	1	1	3	1	3	1	712	1	609	1	-	1	-	1	-	1	-	1	-	1
3. Daya Kencana	1	-	1	2	1	-	1	-	1	-	1	1	-	1	-	1	327	1	21	1	-	1	-	1	-	1	-	1	3	1
4. Daya Rakerja	1	-	1	1	1	-	1	-	1	-	1	1	-	1	-	1	400	1	20	1	-	1	-	1	-	1	-	1	-	1
5. Daya Rakerja	1	-	1	-	1	-	1	1	1	-	1	1	-	1	-	1	80	1	30	1	-	1	-	1	2	1	-	1	-	1
6. Daya Rakerja	1	-	1	1	1	-	1	-	1	-	1	-	1	1	1	1	378	1	28	1	-	1	-	1	2	1	-	1	-	1
7. Daya Rakerja	1	-	1	1	1	1	1	-	1	-	1	-	1	-	1	1	495	1	45	1	-	1	-	1	3	1	-	1	-	1
8. Daya Rakerja	1	-	1	1	1	-	1	-	1	-	1	-	1	1	1	1	542	1	142	1	-	1	-	1	2	1	-	1	-	1

III. KAWAN DAN AGENT II.

1. Penataran Jaya	1	4	1	1	1	-	1	-	1	1	1	2	1	1	1	4	1	11	1	653	1	400	1	-	1	-	1	2	1	-	1
2. Tirta Kencana	1	-	1	1	1	-	1	1	1	-	1	1	1	-	1	4	1	1	1	320	1	250	1	-	1	-	1	2	1	-	1
3. Mulya Kencana	1	-	1	1	1	-	1	-	1	-	1	1	1	-	1	-	1	1	1	96	1	10	1	1	1	-	1	3	1	-	1
4. Pulung Kencana	1	-	1	1	1	-	1	-	1	-	1	1	1	-	1	-	1	31	1	30	1	51	1	6	1	5	1	4	1	-	1
5. Candira Kencana	1	-	1	1	1	-	1	1	1	-	1	-	1	-	1	-	1	1	1	30	1	36	1	4	1	2	1	3	1	-	1
6. Mulya Sari	1	-	1	1	1	1	1	-	1	-	1	1	1	-	1	-	1	21	1	38	1	78	1	-	1	-	1	3	1	-	1
7. Samudra Baru	1	-	1	1	1	-	1	-	1	-	1	1	1	-	1	-	1	1	1	38	1	30	1	-	1	-	1	-	1	-	1
Jumlah	1	2	1	16	1	2	1	4	1	3	1	13	1	3	1	13	1	236	1	783	1	1848	1	11	1	7	1	28	1	7	1

KAWAN DAN AGENT I:

PROYENK : TRANS ISOMER LAY A 2000 I & II.

KENNEDY • 3

LAHIRAN KOLABORASI
DAFTAR 13 Laporan Kegiatan Bagian Proyek Pembinaan dan
Penguatan Desa Transmigrasi Subbagel di-
Way Abung I dan II.
Tanggal : 30 Januari 1993.-

NO.	URAIAN KEGIATAN	TARGET TAHUN ANGGARAN								TOTAL TOTAL RE-PROJEK		SISA	KUT
		75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83	TARGET	REALISASI		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
I. SARANA JALAN :													
1.	Rehabilitasi jalan (tanah)												
2.	Pengerasan jalan (onderlah)							37,70		58,53	58,53	100 %	0 %
								20,93					
3.	Peningkatan jalan (penetrasi)	20	30							50	50	100 %	0 %
4.	Rehabilitasi jalan (aspal)				50	30	20			100	100	100 %	0 %
5.	Jembatan darurat			14						14	14	100 %	0 %
6.	Jembatan semi permanent				11	12	8	6		37	37	100 %	0 %
7.	Jembatan permanent		6							6	6	100 %	0 %
8.	Gorong - gorong	29	49					63		141	141	100 %	0 %
II. SARANA SOSIAL :													
1.	Pes Kearsunan			3	3	1	2	2		11	11	100 %	0 %
2.	Pes a a r			11						11	11	100 %	0 %
3.	Rumah petugas pos			5						5	5	100 %	0 %
4.	Rumah pos					4	3			7	7	100 %	0 %
5.	Koperasi Unit Desa			2	2		3	3		10	10	100 %	0 %
6.	Gedung desa / induk	1				2	2			5	5	100 %	0 %
7.	Bankai jamuran						3	3		6	6	100 %	0 %
8.	Sentral listrik	1								1	1	100 %	0 %
III. SARANA PENDIDIKAN :													
1.	Rumah kepala sekolah			4				2		6	6	100 %	0 %
2.	Gedung S.P.A.	1		2	1					4	6	100 %	0 %
3.	Gedung S.P.A.				1					1	1	100 %	0 %
4.	Gedung S.P.A.A.				1					1	1	100 %	0 %
IV. SARANA KESEHATAN :													
1.	Rumah petugas kesehatan			5	1					7	7	100 %	0 %
2.	Rumah Dokter				2					2	2	100 %	0 %
3.	Puskesmas / BKIA.	2		6	1	1				10	10	100 %	0 %
4.	Pes Kesehatan						12			12	12	100 %	0 %
5.	Jamban keluarga		1000	1000	1000	1000	1000			5000	5000	100 %	0 %
6.	Sumur pompa/pompa tangan		200	500	500	1000				2200	2200	100 %	0 %

Bersambung ke hal 2.

1	2	3	4	5	6	7	8
V. <u>REKAM POKOK KAWAN</u> :							
1. Cattle Holding Ground	1	1	1	1	1	1	1
2. Rumah petugas peternakan	1	1	1	1	1	1	1
3. Kantor pengawas ternak/Moss	1	1	1	1	1	1	1
4. Kandang / Karantina	1	3	1	1	7	1	1
5. Mail Unit	1	1	1	40	1	1	1
6. Kandang pelan	1	1	1	1	6	1	1
7. Transit Farm	1	1	1	1	1	1	1
8. Dip + seker	1	1	1	1	1	1	1
9. Pagar beton (Kawat duri)	1	1	1	9200	400	1	1
VI. <u>REKAM KAWAN</u> :							
1. Rumah petugas type D.	1	1	1	10	2	3	1
2. Rumah staf / type D.	1	1	1	1	6 + 4	1	1
3. Rumah P.A.L.	1	1	1	18	9	1	1
4. Kantor Unit Desa	1	1	1	5	5	5	3
5. Rumah petugas Unit Desa	1	1	1	10	10	1	1
6. Desa Proyek	1	1	1	1	1	1	1
7. R. D. C.	1	1	1	1	1	1	1
8. Bengkel & work shop	1	1	1	1	1	1	1
9. Kantor B.M.	1	1	1	6	1	1	1
10. Rumah petugas B.M.	1	1	1	6	6	1	1
11. Kantor Proyek	1	1	1	1	1	1	1
12. Rumah kepala Proyek	1	1	1	1	1	1	1
13. Rumah kepala	1	1	1	1	3	1	1
14. Bangunan LP.3	1	1	2	1	1	1	1

T A B E L 14 : DATA PRETERNAKAN , PERIKANAN

KABUPATEN : LAMPUNG UTARA.

PROYEK : TRANSMIGRASI WAY ABUNG I & II.

[illegible]

TABEL 15 : DATA KADER PEMERANGKUAN DESA DAN RUMAH INDUSTRI.
KABUPATEN : LAMPUNG UTARA.
PROYOK : TRANSKENDARI WAY A URG I & II.

No.	UNIT DESA	KADER PEMERANGKUAN DESA														RUMAH INDUSTRI										Ket.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Kep. RT	Kep. RW	Kep. Desa	Kep. LK	Kep. nian	Kep. nakan	Kep. an	Kep. janan	Kep. kaya	Kep. bos	Kep. janti	Kep. janti	Kep. bay	Kep. culan	Kep. foto	Kep. teng	Kep. lair	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air		Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. air	Kep. 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REMARKS :

[illegible]

[illegible]

1. Land Use

2. Land Use

Summary of findings from the investigation & survey

The attached sheets contain information on land under cultivation, yields and production, from the brief survey I gave in Batunaja and Way Abung ^{in February}. The data are based on farmers reports. Twenty farmers were interviewed in each of 21 villages, but to date we have received the forms only from the 8 Way Abung villages (160 informants) and 4 of the older Batunaja villages (80 informants).

Major findings may be summarized as follows:

1. Average Amount of land in food crop production

- | | |
|--|-----------------|
| A. Way Abung Villages (with 1.0 ha) - 1.0 ha | } TRB = 1.12 ha |
| B. Way Abung Villages (with 2.0 ha) - 1.3 ha | |
| C. Batunaja Villages (with 4.0 ha) - 1.3 ha | |

2. % farmers cultivating less than 1 ha / 1-1.9 ha / 2+ ha

A. Way Abung (1.0 ha) - % 5 / 95 / 0

B. Way Abung (2.0 ha) - % 27 / 52 / 21

C. Batunaja (4.0 ha) - % 15 / 66 / 19

3. Average amount of land in production without drought

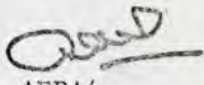
A. Way Abung (1.0 ha) - 1.0 / 1.0

B. Way Abung (2.0 ha) - 1.2 / 1.4

C. Batunaja (4.0 ha) - 1.1 / 1.6 *

OFFICE MEMORANDUM

DATE February 2, 1983

TO: J. P. Baudelaire, AEPA4 

FROM: M. Altaf Hussain, Chief, AEPA4

EXTENSION: 72145

SUBJECT: INDONESIA - Trans I PCR and Trans II SPN Missions - Terms of Reference

1. On February 3, 1983 you will proceed to Jakarta for about 4 weeks to lead the Transmigration I project completion mission and to participate in the Transmigration II project supervision mission. You will also overlap with the FAO/CP mission to discuss programs and plans of project funded studies for irrigation in transmigration settlements.

Transmigration I Project Completion Mission

2. In this mission you will be assisted by Mr. A. Klempin, Economist (RSI) and Miss G. Davis, Anthropologist, who will join the mission about February 24, 1983. Mr. J. Mullan (RSI), Senior Loan Officer, as suggested by Mr. Walden, will also join the mission to familiarize himself with the project during the field visit but his time will not be charged to the PCR.

3. You are requested to assess the project's implementation and performance and also make any suggestions to improve management and implementation of possible future Bank assisted Transmigration projects. You will base your findings on:

- (a) Discussions with the implementing agencies in Jakarta and with the Project Management Unit (PMU) in Baturja (South Sumatra);
- (b) Discussions with IPB on project evaluation and monitoring;
- (c) The PCR prepared by the PMU and the collection of any additional or missing data; and
- (d) The review of the Bank's project files.

4. In addition to your duties of mission leader, you will pay particular attention to the design and engineering aspects of the trans-migrant settlement from the view point of village lay out and construction of civil works including land clearing. You will also in conjunction with Mr. Klempin and Miss Davis, assess the agricultural activities of the trans-migrants and their variation over time. Upon your return to Washington you will submit a full PCR.

Transmigration II Supervision Mission

5. You will join Mr. Klempin in the above mission. Your responsibilities will be to review the engineering components of the project and in particular:

- (a) The land clearing, roads, public facilities and settlers' housing;
- (b) The performance of the consultant in charge of supervising the engineering work;
- (c) The follow-up action on land clearing and civil engineering recommended by the June 1982 Supervision Mission;
- (d) The progress made for the planning of villages to settle 20,000 transmigrants; and
- (e) The progress made for the bidding and construction of the infrastructure to settle 20,000 transmigrants.

On return from the field you will join Miss Davis and Mr. Klempin to discuss with the main implementing agencies (JMT, DITADA and PLPT) and your findings.

6. Before leaving Indonesia you will brief the mission leader on your findings and recommendations and upon your return to Washington you will write an annex to be attached to Form 590.

JPBaudelaire/dd

cleared with and cc: Mr. D. Morrow (AEADC)

cc: Messrs. Rajagopalan (PAS) (3), Yudelman (AGR) (5), Perera (LOA),
Mead (LEG) (2), Hasan (AEN), Jaycox, Bussink, R. Stern (AEA) (3),
Kirmani, Golan, Baldwin, Fox (AEP), Walden (RSI) (2), Klempin (RSI)
Ms. G. Davis (AEPA4)

Table 3 Average yields (for all farmers) ⁽¹⁾ in T/ha

Units/year	77/78	78/79	— — —	82/83	Average
I					
II					
⋮					
XI					
Average	—	—	—	—	—

Table 4 Fruit trees (Number and species) give also expected yields.

units/year	77/78	78/79	82/83	Total
I				
II				
⋮				
XI				
Total				

Table 5 Perennial crop (Number and species) give also expected yields
same type of table as in 4

(1) Not CRFA farmers but average of all farmers. and indicate the % of area which is cropped exactly according to CRFA cropping pattern

Additional data requested by Mr J.P. Baudelaire and to be given to Miss Gloria Davis.

Tables to be prepared per unit if possible if not for total project (Baturaja and Way Abung in two series of tables)

Table 1 Land clearing for house lot and Food crops (1)

units/years	77/78	78/79	81/83	Total
-------------	-------	-------	-------	-------

I

II

VI

total

Table 2 Area cropped per Season All in hectares

units/years	77/78	78/79	82/83	Total
-------------	-------	-------	-------	-------

I

II

VI

total

- a) 1st Season Nov → March indicate type of crops 10% of total
 b) 2nd Season April → July " " " "
 c) 3rd Season Aug → October " " " "

cc. MAH/GD.

To M.J. Walden, Chief R.S.I. Agricultural Division. *AW*
for attention Arno Klempen Agricultural Economist.

From G.R. Henderson.

Transmigration I.

Livestock Production.

I enclose a memorandum containing production details and some conclusions.

Some of the data is required by Ms. Gloria Davies. If she is still at R.S.I. she might also hand carry a copy to J.P. Baudelaire, Room E624 Ag. Projects AEP4.

Memorandum

To M.J. Walden, Chief R.S.I. Agricultural Division.

From G.R. Henderson, Consultant.

Subject INDONESIA: Transmigration I.

March-1983 Livestock Production.

- (1) As instructed, I spent two days collecting information regarding the performance and production of cattle in Transmigration I areas of Baturaja and Weyabung. I also visited Prof. Soebadi Partodihardjo and Drv. Suharto Djojosedarmo of the Department of Reproduction, Faculty of Veterinary Medicine, Bogor University.
- (2) The latter Department has a contract with Transmigration authorities to render assistance to cattle farmers in the area with A.I., some disease and vaccination assistance and advice. They also have conducted an informal survey (Table 5) through visits, and data collected by some village high school graduates they have trained for A.I. etc. during a one month course.
- (3) Tables I and 2 were supplied by Transmigration Authorities. It is not clear whether all births are recorded. or only the first two (as in Table 5 from Veterinary Faculty survey).
- (4) In Tables 3 and 4 Tentative Calving percentages and bull ratios are calculated.
- (5) Table 5 was derived from figures given by the Reproduction Department Bogor University. Only the first two calves were recorded.
- (6) Tables 6 and 7 cover tentative herd projections for Baturaja and Weyabung areas based on estimated paramaters from above tables, farmer interviews, and information gained in IPAD - 35 - ID Smallholder Cattle Development Project.

(7) Conclusions

(a) Calving rates were very low in initial years but rising steadily thereafter. Percentages shown in tables are probably lower than actuals as in some cases only first two births are recorded (Table 5) coupled with farmer unwillingness to disclose some births to avoid or delay loan repayments. A final overall calving rate of 60% is estimated for the herd projections (Tables 6 and 7).

(b) Annual death rates for stock other than cows or calves is taken at 7%. The IFAD Smallholder Cattle Project computer is showing an annual cow death rate of 6.5% for the first 2000 head of cattle distributed.

(c) Annual deaths for calves to weaning is taken at 15%, this is lower than found in some other developing countries, but calves get all the available mothers' milk and are well looked after.

(d) Cow replacements are tentatively estimated at 15% inclusive of deaths and culling for old age, and slaughtering in the village for ceremonies.

(8) Project Authorities estimate some 6 to 7 % males to females in settlers' herds. The Department of Production has a much lower figure at 4% overall. The discrepancy is probably due to immature males being counted in the former. The Table 5, derived from Production Department figures, also shows bull percentages as low as 1% in some individual geographical Transmigration Units. Farmers have to travel up to 3km. with their cows to the nearest bull. An AI program was started to alleviate this chronic shortage, but indications are that it is not very efficient.

The Bali breed is the most productive, followed by Ongol, and then Brahmin. Brahmin bulls are not popular and have the reputation of lack of libido.

(9) Recommendations

(a) A bull to cow ratio of 10% is strongly urged. Therefore some 500 bulls of local breeds should be added to the IFAD program of supply to Lampung Province for this year as a matter of urgency. If the program cannot be increased then 500 of the 1000 female stock for Lampung should be dropped and bulls substituted.

(b) Ongoing Transmigration Projects should also ensure that a bull ratio of 10% be allowed for.

(c) In view of the poor record of imported Brahmin bulls only local breeds should be used until this has been investigated. (See proposed work by Transmigration II consultants and previous back to office report).

(d) The contract undertaken by the Production Department Veterinary Faculty, Bogor University due to run out this April 1983 should be renewed and expanded with wider and more precise terms of reference to include all production parameters.

(10) Recommended Livestock Benefit Figures.

(i) 3-3½ year males sold for slaughter 1983 figure- 275,000 rh.

(ii) Old females for village slaughter-----50,000 rh.

(iii) Extra pregnant heifers added to herd each year- 200,000 rh. each.

(iv) ½ extra hectare of crop for each female possessed by farmers. Taken at crop benefit rates each year.

(v) Annual production of dung made into Farmyard Manure with crop wastes under stock; benefit taken at half cost of fertilisers used by non stock owning farmers.

(II) Recommended Annual Costs per Animal.

(i) 2½ hours family labour each day. A proportion of non-opportunity labour goes to tending livestock.

(ii) Veterinary medicines (mostly free), salt, cow shed depreciation etc. ---1000 rh. annually per animal.

Transmigration I
Details supplied by Dept. Reproduction,
Veterinary Faculty, Bogor Agric. University
BATURAJA - situation on ground end '92

	Breed	Reception Year	Males	Females	Bull Percentage	First Second Calves only
I	P. Ongole	6/78	37	392	9%	270
II	Brachin	12/78	13 ²⁾	413	1%	184
III	Brachin	2/79	4	347	1%	160
IV	Ongole	'80	4	242	2%	Not known
V	Bali	recently	27	759	4%	
VI	Bali	"	26	417	4%	
VII	Bali	"	16	459	3%	
VIII	P. Ongole	"	8	216	4%	
IX	P. Ongole	"	12	200	6%	
X	P. Ongole	"	28	453	3%	
	Totals	"	175	4297	4%	

Bull percentage = 4%

- 1) This calving percentage is notional as data was not collected for calves after 2. i.e. 2 calves in three years was taken as basis for calculation
- 2) As in other tables calving percentage rises with length of years of cows in scheme
- 3) As in other tables Brachin shows lower calving rates.
- 4) Infertile cows were defined as infertile after 5 years with bull or 5 unsuccessful inseminations.
- 5) 10 out of 13 bulls infertile

Table 5
This includes Baturaja
and some other adjacent areas does not have direct comparison
with details supplied by Transmigration

6	7	8	9	10	11	12
Second Calves Only	Total of 1 st & 2 nd Calves	Cow Calving Years	Cow Years	Calving percentage	Number of Infertile cows	
63	333	3	1176	28% ³⁾	57	
37	221	3	1259	18% ³⁾	192	
17	177	3	1041	17% ³⁾	170	

12	13	1	2	3	4	5
93	94	95	96	97	98	99
7040	7470	7920	8400	8910	9450	10020
60%	60%	60%	60%	60%	60%	60%
2110	2240	2380	2520	2670	2840	3010
2110	2240	2380	2520	2670	2840	3010
1690	1790	1900	2020	2140	2270	2410
1690	1790	1900	2020	2140	2270	2410
1470	1570	1670	1770	1880	1990	2110
1470	1570	1670	1770	1880	1990	2110
1060	1120	1190	1260	1340	1420	1500
430	450	480	510	540	570	610
1300	1390	1450	1550	1650	1750	1850
350	370	400	420	440	470	500

6	7	8	9
2000	2001 (20 years)		
10630	11280		
60%	60%		
3190	3380		
3170	3380		
2560	2710		
2560	2710		
2240	2380		
2240	2380		
1590	1690		
650	690		
1960	2080		
530	560		

Transmigration I. Iterd Projection Weybung.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
		1982	83	84	85	86	87	88	89	90	91	92																									
	Females in herd(hulls 200)	4500	4550	4590	4620	4740	4940	5200	5550	5890	6250	6630																									
	Calving %	40%	45%	50%	55%	60%	60%	60%	60%	60%	60%	60%																									
	Male calves born	900	1020	1150	1270	1420	1480	1560	1670	1770	1880	1990																									
	Female calves born	900	1020	1150	1270	1420	1480	1560	1670	1770	1880	1990																									
	Yearlings male	770	770	870	980	1080	1210	1260	1330	1420	1500	1600																									
	Female	770	770	870	980	1080	1210	1260	1330	1420	1500	1600																									
	losses to yearlings 15%																																				
	2 year old males	720	720	720	810	910	1000	1130	1170	1240	1320	1400																									
	2 year old females	720	720	720	810	910	1000	1130	1170	1240	1320	1400																									
	losses at 2 year olds 7%																																				
	2 year Female kept for replacement																																				
	at 75%	1670	680	690	690	710	740	780	820	880	940	990																									
	2 year Females join cow herd	50	40	30	120	200	260	350	340	360	380	410																									
	SALES																																				
	3 year Males for sale from previous year																																				
	at 7%	670	670	670	670	750	850	930	1060	1090	1150	1230																									
	Village slaughter of old cows																																				
	@ 5%	220	230	230	230	240	250	260	280	290	310	330																									
	Replacements used = 75%																																				
	Cow replacement																																				
	60% final calving rate																																				
	7% annual young stock loss																																				
	15% calf to weaning loss																																				
	Heard estimated to increase 3 times within area																																				
	and then sell excess																																				
	Two year old heifers																																				
	sell in 3rd year and are regarded as cows																																				
	Ad. cow																																				

Herd Projection Baturaja.

	1992	1993	1994	1995	1996	1997	1998	1999	1990	1991
Females in Herd	4,000	4030	4060	4080	4190	4370	4600	4910	5200	5510
Calving %	40%	45%	50%	55%	60%	60%	60%	60%	60%	60%
Male calves born	800	910	1020	1120	1260	1310	1380	1470	1560	1650
Female calves born	800	910	1020	1120	1260	1310	1380	1470	1560	1650
Yearlings male @ -15%	680	680	770	870	950	1070	1110	1170	1250	1330
Yearlings female	680	680	770	870	950	1070	1110	1170	1250	1330
2 year old males @ -7%	630	630	630	720	810	880	1000	1030	1090	1160
2 year old females	630	630	630	720	810	880	1000	1030	1090	1160
2 year old females kept for replacement & culling @ 15%	600	600	610	610	630	650	690	740	780	830
Enter 2 year olds to adult herd	30	30	20	110	140	230	310	290	310	330
<u>Sales</u>										
3 year old males @ -7%	590	590	590	590	670	750	820	930	960	1010
at end of 3 rd year value										
Valley slaughter at age 3 cows @ 5%	200	200	200	200	210	220	230	240	260	280
Parameters used = 15% Cow replacement 60% Calf culling rate 15% to weaning calves (1 st year) 7% subsequent for yearlings & onwards.										
Two year old heifers cull - 3 rd year and are counted as cows for simplicity										
3-3 1/2 year old females pregnant			30	30	20	110	230	310	290	310

12	13	1	2	3	4	5
1993	1994	1995	1996	1997	1998	1999
6200	6570	6980	7400	7850	8330	8840
60%	60%	60%	60%	60%	60%	60%
1860	1970	2090	2220	2360	2500	2650
1860	1970	2090	2220	2360	2500	2650
1490	1580	1680	1780	1890	2010	2130
1490	1580	1680	1780	1890	2010	2130
1300	1390	1470	1560	1660	1760	1870
1300	1390	1470	1560	1660	1760	1870
930	980	1050	1110	1180	1250	1330
370	410	420	450	480	510	540
1150	1210	1290	1370	1450	1540	1640
310	330	350	370	390	420	440
360	370	410	420	450	480	570

6	7	8	9	10	11	12
2000	2001 (20 year)					
9380	9950					
60%	60%					
2810	2980					
2810	2980					
2250	2390					
2250	2390					
1980	2090					
1980	2090					
1410	1490					
570	600					
1740	1840	1960	2080	2100	2320	2460
470	500	2600	2740	2880	3040	3200
540	570	600	630	660	690	710
		750	780	820	860	900

OFFICE MEMORANDUM

DATE April 4, 1983

TO Mr. Jean-Pierre Baudelaire, AEPA4

FROM Gloria Davis, AEPA4

EXTENSION 74215

SUBJECT INDONESIA: Preliminary Data from Transmigration I Project Survey

1. The attached sheets summarize the information on land under cultivation, yields and production from the brief survey I gave in Baturaja and Way Abung in February. The data are based on farmers' reports. Twenty farmers were interviewed in each of 21 villages, but to date, we have received the forms only from the eight Way Abung villages (160 informants) and four of the oldest Baturaja villages (80 informants).

2. Major findings may be summarized as follows:

A. Average amount of land in food crop production

- i. Way Abung villages (with 1.0 ha) - 1.0 ha)
- ii. Way Abung villages (with 2.0 ha) - 1.3 ha) IPB = 1.12 ha
- iii. Baturaja villages (with 4.0 ha) - 1.3 ha

B. Percentage of farmers cultivating less than 1 ha/1-1.9 ha/2+ ha

- i. Way Abung (1.0 ha) - 5%/95%/0
- ii. Way Abung (2.0 ha) - 27%/52%/21%
- iii. Baturaja (4.0 ha) - 15%/66%/19%

C. Average amount of land in production without draught power and with draught power (ha)

- i. Way Abung (1.0 ha) - 1.0/1.0
- ii. Way Abung (2.0 ha) - 1.2/1.4
- iii. Baturaja (4.0 ha) - 1.1/1.6

D. Average per family yields of rice/maize/cassava (kg)/1

- i. Way Abung (1.0 ha) - 557/178/3274
- ii. Way Abung (2.0 ha) - 705/235/2548
- iii. Baturaja (4.0 ha) - 945/264/517 /2

IPB survey of Way Abung - 558 kg padi

/1 Based on dry paddy.

/2 Many Baturaja farmers plant little or no cassava as there is no market and it attracts wild pigs.

- E. Estimated per hectare yield for rice/maize/cassava assuming intercropping
- i. Way Abung -- 835/398/3435
 - ii. Baturaja - 932/383/2063
- IPB 1981 - 662 kg/ha rice in Way Abung
- i.e. higher Baturaja yields in D above appear to be related to larger amount of land in production rather than better technology
- F. Percentage of farmers planting any crops after the main planting season, e.g. CRIA models D or E
- i. Way Abung - 6%
 - ii. Baturaja - 40% /1
- G. Number of farmers using no inputs/purchased inputs/inputs supplied by GOI programs/average number kg fertilizer used
- i. Way Abung - 16/48/39*; 178 kg/family
 - ii. Baturaja - 1/80/50; 334 kg/family
3. Additional materials on number of possessions, demographic and attitudinal information will be processed in June. Supplementary information on Way Abung will be forwarded separately.

/1 At least half of these farmers plant 0.25 ha or less

* Can exceed 100% because some farmers buy fertilizers and use GOI program.

cc: Mr. Klempin (RSI)

GJDavis/cjc

[illegible]

Land in Production

	Years on site	Average amount of land cultivated	% families cultivated less than 1.0 ha	1-1.9 ha	2+ ha	% families with cattle	% families using cattle for draught	Average land (ha) Cultivated without draught	Average land (ha) cultivated with draught	Ha cultivated if 2 family members	3-4 members over 14	5+ members over 14	Ha cultivated if plot less than 2.0 from house lot	more than 2.0 km from house lot	% farmers buying land	% farmers
<u>1.0 ha food crops / 1.0 ha trees</u>																
WA - Panarangan Jaya	9	1.0	05	95	—	65	55	1.0	1.0	1.0	1.0	1.0	1.0	1.0	45	10
WA - Penumangam	9	1.0	05	95	—	40	30	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	0
Subtotal	—	1.0	05	95	—	52	42	—	—	—	—	—	—	—	27	5
<u>2.0 ha for food crops</u>																
WA - Tata karya †	18	1.7	05	40	55	45	45	1.5	1.8	1.2	1.7	2.0	1.7	—	10	25
WA - Purbasakti	18	1.4	45	25	30	40	30	1.0	2.2	1.3	1.4	1.5	1.4	—	20	05
WA - Bangumsari	16	1.2	35	45	20	15	15	1.2	1.3	1.3	1.2	1.0	1.2	.75	30	35
WA - Mulyo Asri	9	1.1	25	70	05	60	60	1.0	1.1	1.6	1.0	1.1	1.1	—	40	15
WA - Candra Kencana	9	1.1	40	50	10	60	40	1.0	1.4	1.6	1.1	1.0	1.0	1.3	30	0
WA - Makarti	10	1.2	10	85	5	65	65	1.1	1.3	1.3	1.0	1.8	1.3	1.0	40	20
Subtotal		1.3	27	52	21	48	43	1.2	1.4	1.4	1.2	1.4	1.3	1.2		
<u>4.0 ha food crops / 1.0 ha trees</u>																
BM - Unit I	6-6.5	1.4	10	65	25	85	53	1.3	1.4	1.2	1.4	1.9	—	—	0	0
BM - Unit II	6	1.3	05	75	20	100	53	1.0	1.7	1.2	1.3	1.9	—	—	0	0
BM - Unit III	5	1.5	05	70	25	100	67	1.0	1.8	1.3	1.6	2.0	—	—	0	0
BM - Unit IV	4	1.0	40	55	05	100	0	1.0	—	1.0	0.9	1.0	—	—	0	0
Subtotal		1.3	15	66	19	96	↓	1.1	1.6	1.2	1.3	1.7				
Total							57 % (excluding unit IV - cattle too small).									

† Primary Village Center

OFFICE MEMORANDUM

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TO Mr. Jean-Pierre Baudelaire, AEPA4

FROM Gloria Davis, AEPA4

EXTENSION 74215

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F. Percentage of farmers planting any crops after the main planting season, e.g. CRIA models D or E

- i. Way Abung - 6%
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G. Number of farmers using no inputs/purchased inputs/inputs supplied by GOI programs/average number kg fertilizer used

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cc: Mr. Klempin (RSI)

GJDavis/cjc

[illegible]

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<u>1.0 ha food crops / 1.0 ha trees</u>																
WA - Panarangan Jaya	9	1.0	05	95	—	65	55	1.0	1.0	1.0	1.0	1.0	1.0	1.0	45	10
WA - Penumangam	9	1.0	05	95	—	40	30	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	0
Subtotal	—	1.0	05	95	—	52	42	—	—	—	—	—	—	—	27	5
<u>2.0 ha for food crops</u>																
WA - Tata karya *	18	1.7	05	40	55	45	45	1.5	1.8	1.2	1.7	2.0	1.7	—	10	25
WA - Purbasakti	18	1.4	45	25	30	40	30	1.0	2.2	1.3	1.4	1.5	1.4	—	20	05
WA - Bangumsari	16	1.2	35	45	20	15	15	1.2	1.3	1.3	1.2	1.0	1.2	.75	30	35
WA - Mulyo Asri	9	1.1	25	70	05	60	60	1.0	1.1	1.6	1.0	1.1	1.1	—	40	15
WA - Candra Kencana	9	1.1	40	50	10	60	40	1.0	1.4	1.6	1.1	1.0	1.0	1.3	30	0
WA - Makarti	10	1.2	10	85	5	65	65	1.1	1.3	1.3	1.0	1.8	1.3	1.0	40	20
Subtotal	—	1.3	27	52	21	48	43	1.2	1.4	1.4	1.2	1.4	1.3	1.2	—	—
<u>4.0 ha food crops / 1.0 ha trees</u>																
BM - Unit I	6-6.5	1.4	10	65	25	85	53	1.3	1.4	1.2	1.4	1.9	—	—	0	0
BM - Unit II	6	1.3	05	75	20	100	53	1.0	1.7	1.2	1.3	1.9	—	—	0	0
BM - Unit III	5	1.5	05	70	25	100	67	1.0	1.8	1.3	1.6	2.0	—	—	0	0
BM - Unit IV	4	1.0	40	55	05	100	0	1.0	—	1.0	0.9	1.0	—	—	0	0
Subtotal	—	1.3	15	66	19	96	↓	1.1	1.6	1.2	1.3	1.7	—	—	—	—
Total	—	—	—	—	—	—	57 % (excluding unit IV - cattle too small).	—	—	—	—	—	—	—	—	—

* Primary Village Center

SPONTANEOUS TRANSMIGRATION

Introduction

There are large numbers of people from Java, Bali and Madura especially, who migrate on their own to settle in the outer islands. The history of some of these movements has been well documented ^{1/} and currently it is estimated that approximately 138,258 families moved spontaneously between 1 April 1978 and 31 December 1982 .

The government would like to increase the scale of spontaneous transmigration, while progressively reducing the size and high cost of transmigrasi Umum. This note deals with some of the relevant factors and suggests some ways of maximizing the scale of spontaneous (swakarsa) transmigration.

Relevant Factors

Given that there is already a steady flow of swakarsa, the problem is how to make sure that too many do not go to one area and produce overcrowding, as has occurred in Lampung. The swakarsa need to be channeled to areas where their presence and skills are needed.

The second point is that by definition, the swakarsa are those people who operate outside the government machinery. A basic policy of any swakarsa programme should be that government interference should be kept to an absolute minimum, or the numbers of people moving spontaneously may actually decrease, instead of increasing. The question therefore is what is the minimum contact necessary between swakarsa and government officials, in order to channel them to the right places, and to provide some services when they get there?

A third point to bear in mind is that swakarsa are people who make decisions for themselves and help themselves. These talents should be encouraged and not inhibited by unnecessary regulations.

^{1/} See 'Moving With The Flow' by Ms. Gloria Davis

Basic Rules

There are then six basic considerations to be taken into account when designing a swakarsa programme.

1. To encourage more people from overcrowded areas to transmigrate spontaneously.
2. To inform them of places where they may go.
3. To prevent too many going to any one area and thereby cause overcrowding.
4. To provide land rights and basic services to swakarsa in their new locations.
5. To make as much use as possible of their self help and independant attitudes.
6. To place as few impediments, bureaucratic and otherwise, in their way so as not to discourage them from moving.

There are various steps which can be taken to promote the movement and settlement of swakarsa, these include

Steps to be taken in the areas of origin

1.
 - i. Mount information campaigns to inform the public about the opportunities for swakarsa, and what support or inputs they can expect from government or private agencies.
 - ii. The media used should include local radio, posters, and mobile teams of wayang orang and/or audio visual aids.
 - iii. The campaigns in each sending area should be designed to inform the people about opportunities for spontaneous transmigration in areas which are nearest to them, and therefore will minimize transportation costs.
2. Develop a simple system of distributing application forms which the prospective swakarsa can send directly to the Chief of Transmigration in the province of his choice. Possibly the Lurah could countersign the application form and keep a record.
3. Do not insist the prospective swakarsa pass through the local transmigration offices.

Steps to be taken in the receiving provinces

1. There are two types of swakarsa to be accommodated in receiving provinces, and these are:
 - i. Those who sent application forms from their home areas, and
 - ii. Those who just turned up in the Province without having applied first.

Both are important as they both contribute to the overall movement.

2. For those who applied first, the Chief of Transmigration in the Province or possibly the Kabupaten, should maintain a list of sites being developed/cleared, and write back to the prospective swakarsa informing him of,
 - i. where to go
 - ii. his land plot number
 - iii. when to come.

The swakarsa who simply come without application could be treated in a similar manner. For all such swakarsa a careful record must be maintained to ensure the same plot is not allocated twice.

3. Give land title and some house building materials to each swakarsa, and possibly some food support.
4. Encourage existing settlers to write to their friends and relatives to join them. Migrants (swakarsa) have a tendency to move to places where they already know the people.
5. For those swakarsa who neither apply by post first, or report to a transmigration office in a receiving province, request the Krio, Lurah or other local chief to accommodate them and to register and report their presence to the higher authorities.

This is very important as there is a tendency for Kepala Kampong to encourage people to stay in their areas to increase their power and authority, but with the risk of encouraging overcrowding as well.

6. Involve the private sector through estates and other enterprises. The transmigration authorities to keep close ties with such employers and encourage them to use swakarsa labour. Such settlers would, however be entitled to the minimum holding of a house lot of one quarter hectare.

DAPB/pl
13.4.83

A REVIEW OF AVAILABLE TECHNOLOGIES AND RECOMMENDATIONS FOR
EXTENSION TO FARMERS THROUGH THE PPS FOR SOYBEAN IN INDONESIA

(FINAL REPORT)

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Duration of
consultantship : March 19, '83 - April 20, '83

I. PLACES VISITED

1. Jakarta : 1. National Agricultural Extension Project
2. Directorate General of Agriculture, Agency for Agricultural
Research and Development (AARD)
2. Sumatra : 1. Rural Extension Center, Aceh Timur
2. Langsa
3. Perulak, Jamboaye
4. Lhokseumawe, Aceh Utara
5. Sudirwan
6. Peudada
7. Banda Aceh

Note: Lectures given and discussions participated are given in Appendix
Table 1.

Some of the key people met and discussed are given in Appendix
Table 2.

Seminar paper presented in Yogyakarta is enclosed in Appendix 4.

3. Yogyakarta : Seminar on Palawija crops extension
 1. Kulon Progo (sojan's method of cultivation)
4. Bali : 1. Gianyar, Klungkung
 2. Bukit Badung
5. Surabaya : Seminar on Palawija crops
(Jawa Timur)
 1. Ponorogo, Nganjuk, Madiun, Kediri, Malang, Bedali, Bogore, Karangreggo
6. Sulut : 1. Manado
(Sulawesi Utara)
 2. Kotamobagu
 3. Mopuya (Transmigration area)
 4. Domuga
7. Jawa Tengah : 1. Semarang
 2. Bandungan - Seminar on Palawija crops extension
8. Nusa Tenggara: 1. Sekotong, Selateng, Ampen, Pujung, Narmada and Mataram Barat
9. Bogor : Final meeting

II. ACKNOWLEDGEMENT

I would like to express my sincere thanks to the Director General of Agriculture and the National Agricultural Extension Project (NAEP), particularly Mr. Soenarso Wirjoprajitno for recognizing AVRDC and myself and inviting me as a consultant. My participation from AVRDC to the Republik of Indonesia's NAEP project would not have been possible without the strong interest and desire of the World Bank officials, namely, Mr. Bill Russell, and Mr. Michael Walden, to whom on behalf of AVRDC and on my own behalf, I express my heartfelt thanks for giving us an opportunity to meet the challenge squarely. I am fortunate to have the previledge of

having the company of excellent and enviable domestic expert and counterpart team who were sincere, understanding, cooperative, enthusiastic and willing to work together to make our effort a productive one. I take this opportunity to convey my sincere appreciation and let them know how much I enjoyed my intellectual interaction with them. To all those staff members from NAEP, AARD and the provincial level inspectors, PPS, PPM and PPL, I would like to mention that I will try to follow up on my dialogue and try to assist them in whatever way I can. From AVRDC, our scientists will be most pleased to cooperate with the Republik of Indonesia to assist in increasing the production of Palawija crops, namely soybean and mungbean.

III. PREPARATION

Concerted research and extension efforts in Paddy by the Ministry of Agriculture in the Republik of Indonesia in the past decade, have paid off with a quantum jump in rice production. Such a drive is needed to make significant progress in increasing the production of Palawija crops in the next few years. The urgency of the problem dictated the Government to fix targets so that the research and extension staff work together to attain these targets.

The stage was set in the first meeting held at the National Agricultural Extension Project headquarters in Jakarta on March 21, 1983. The meeting was chaired by Mr. G. S. Dady, Assistant Director of NAEP and attended by myself (foreign consultant), 3 World Bank officials, 2 domestic experts and all of the counterpart team members of the 4 Palawija crops, namely soybean, peanut, corn and cassava.

The terms of reference were explained (see Appendix 3) and discussed at the meeting. The terms of reference may be summarized as follows:

1. Observe the farmers' practices and problems of soybean production.
2. Assess the available technologies from the research within Indonesia and from other international centers.
3. Offer suggestions, recommendations and proposals (short term, medium term and long term) to transfer the available technologies through PPS, PPM and PPL (different levels of extension workers) to the farmers.
4. Suggest approaches to develop technology needed by the PPS, PPM and PPL which have to be undertaken by the AARD in cooperation with the NAEP.
5. Present papers at the seminar and discuss with the PPS, PPM and PPL in each of the provinces where the consultant will visit.
6. The present yield of soybean has to be doubled. To that end, identify and prepare a technical package for the extension workers so that they can transfer the technology to the farmers.

There are 14,000 PPL's but their knowledge on Palawija crops is very thin although a great deal of information on the agronomy of the crops is available. We should concentrate on the ways and means of making best use of the PPS, PPM and PPL. It is best that the problems outside the competence of the team be avoided.

It is important to determine the immediate yield limiting problems and identify the appropriate technology to eliminate or minimize the problem. Indicate the priorities. The recommendations should take into consideration not only increase in production but also increase in income to the farmers.

The policy of the Government is to increase the income of the farm family, using upland rice as the farming system along with Palawija crops, to more than US\$520/per year per farm family. To make immediate progress, the strategy is to put together all the available technology and use it in selected locations.

IV. PROBLEMS OF SOYBEAN OBSERVED DURING THE TRAVEL AND VISITS (T and V) TO DIFFERENT PROVINCES IN THE REPUBLIK OF INDONESIA

Problems in the provinces were reviewed on the basis of the following

21 points:

1. A specific program to attain the objective
2. Variation in soil types - implications
3. Environmental diversity between provinces and even within a province
4. A range of farm sizes and capital availability for the farmers to provide inputs
5. Multiplicity of the cropping systems in which soybeans are used
6. Farming system of the farmers which includes cattle as a component in the system
7. Land preparation - tillage or no tillage or minimum tillage
8. Moisture management
9. Fertilizer requirement
10. Rhizobium inoculation
11. Seed
 - a) Varieties
 - b) Availability
 - c) Quality
12. Seed rate and plant population density

13. Seed treatment
14. Planting method
 - a) Broadcasting
 - b) Drilling
 - c) Space planting
15. Weed control
16. Mulching with rice straw
17. Insect management
18. Disease management
19. Types and levels of inputs
20. Harvesting, threshing, drying, processing and storage
21. The economic aspect of different inputs and yield levels in terms of income

V. OBSERVATIONS AND COMMENTS

1. According to the field staff in the following areas visited there is an urgent need to have a specific program planned and executed to provide necessary assistance to the farmers:

1) Aceh Timur

ii) Aceh Utara

As Dr. Hadijono mentioned, current program does not cover all the provinces. Our team considers the absence of a specific program as a problem.

2. There is considerable variation in soil types observed between different locations and even within a province.

The fertility status, water holding capacity, organic matter content, pH, soil structure and texture are quite variable. We need to consider variety and agronomic practices geared to meet the specific types of soils.

3. Temperature (due to altitude variations among the soybean planted areas) and the rainfall distribution are the two major environmental factors causing variability in yield and fluctuations in seed quality.
4. Farm size varies greatly and invariably the capital availability to provide inputs is limited and the farmers are hesitant to risk their meagre capital with no insurance of getting their money back. This is particularly true with small farmers who are poor.
5. Soybeans are included in rice based cropping systems in uplands and lowlands; in wet season and dry season; with irrigation and without irrigation; with tillage or without tillage; corn based or continuous soybean systems are also not uncommon. Different types of cropping systems observed are shown in Table 1.

In majority of the places soybean is intercropped with either corn or cassava or pigeon pea. In sojan's method, soybean is intercropped with a number of different crops. Various mixed cropping systems observed in different locations are listed in Table 2.

6. Majority of the farmers own and manage cattle.

In many areas, after paddy, the farmers allow the cattle to feed on their fallow land. Inclusion of soybean should include identification of alternate feed source for cattle.

Table 1. Various cropping systems in which soybeans are included in the places we visited in Indonesia.

Cropping pattern			Location
Soybean (Sep)	- Soybean (Jan-Feb)	- Peanut (May)	Aceh Timur
Soybean	- Soybean	- Soybean ^{3/}	Langsa
Soybean (Jan)	- Mungbean (May)	- Soybean (Sep)	"
Soybean (March)	- Paddy (Oct-Feb)	-	Jambo Aye
Soybean (March)	- Off season crop (July)	- Soybean (Nov)	Aceh Utara
Paddy	- Paddy	- Soybean	"
Paddy	- Soybean	- Fallow	"
Soybean	- Fallow	- Soybean	"
Soybean	- Soybean	- Soybean ^{3/}	"
Paddy (Oct)	- Soybean (March)	- Soybean (July)	Sudirawan
Paddy	- Soybean	- Horticultural Crop	Banda Aceh
Paddy	- Paddy	- Soybean (Jan)	Bali
Paddy	- Soybean (Aug-Sep)	- Paddy	"
Corn	- Paddy	- Soybean-Onion	Bagora (Ponorogo)
Paddy	- Soybean	- Fallow ^{1/}	Madiun
Soybean	- Fallow	- Fallow ^{1/}	"
Soybean	- Soybean	- Fallow ^{1/}	"
Paddy (Oct-Jan)	- Paddy (Feb-May)	- Soybean ^{2/}	"
Cassava + Corn	- Soybean	- Cassava	Karangreggo (Ponorogo)
Soybean (Nov-Feb)	- Soybean (March-July)	- Soybean (July-Sep) ^{3/}	Sulut, Mopuya (Transmigration area)
Soybean	- Paddy	- Soybean (Rainfed)	Boyolali (Jawa Tengah)
Paddy	- Soybean (Irrigated)	- Corn	"
Paddy (Jan-May)	- Soybean (Oct-Dec)	- Fallow	(Rainfed low land)
Paddy + Cassava	- Soybean + Cassava (March-June)	- Fallow	(Upland)
Soybean (Dec-Jan-Apr)	- Mungbean (Apr-Jun)	- Fallow	Sekotong
Paddy (Oct-Feb)	- Soybean (Feb-May)	- Fallow	South Lombok

^{1/} Previous system

^{2/} Current system

^{3/} Note: Continuous soybean, three crops a year

Table 2. Mixed cropping systems used in the places visited in Indonesia.

Location	Crop involved
Bireuan, Sudirwan (Aceh Utara)	Coffee, Banana, Papaya, Corn, Soybean
Kulon Progo (Yogyakarta)	Cassava, Chillies, Corn, Paddy, Peanut, Soybean, Mungbean, Onion (Sojan's method)
Bukit Badung (Bali)	Corn, Cassava, Peanut, Mungbean, Sorghum
Balong (Ponorogo)	Corn, Cassava, Banana, Soybean
Boyolali (Jawa Tengah)	Soybean, Rice, Cassava, Corn, Pigeon Pea, Peanut

7. Various problems or the positive points which are either unfavourable or favourable for increasing soybean production observed in different provinces are shown in Table 3.
8. Drainage is the major problem in most areas. Availability of moisture is a limiting factor in selected areas like Mopuya (Sulut).
9. The FAO fertilizer trial results need to be critically reviewed and appropriate recommendations need to be prepared. Majority of the farmers seem to use varying amounts of Urea, TSP and KCl. In other cases farmers use no fertilizers [e.g. Sekotong (N.T.B)].
10. In majority of the areas nodulation appears to be good and effective. Availability of good inoculum for farmer is questionable.
11. Seed is either unavailable (e.g. Lombok, 31,000 ha can be planted to soybean but only 11,000 ha planted because no seed is available), if available, it is a mixture of many varieties and of poor quality in

Table 1. Problems observed and discussed in different locations.

Location	Problems observed
Aceh Timur (Sumatra)	Feed for cattle (cows & goats) is needed Varieties mixed No seed (target not achieved) Low seed rate, poor plant stand Pod borers Leaf feeders No capital for input Too far to transport the beans for marketing Environment is variable - sometimes good, sometimes not good No specific program
Aceh Utara (Sudirvan, Peudada)	Tillage is expensive Drainage is a problem Competing crop rice (if irrigation available) Stem green when pods mature Too far to transport the beans Psychological problems Labour problems Weed control (Nutgrass) Seed production Material for extension program lacking (or unavailable)
Yogyakarta	Sojan's method, intensive cultivation Varieties mixed Leaf feeding insects
Bali	Poor quality seeds Varieties mixed Poor germination Tradition is to plant rice only Zero input and tillage No guidance for seed producer Weeds (<i>Gnaphrum sialbosa</i>) Broadcast planting 80% of the farmers Plant stand poor Beanfly Soybean mosaic virus Pod borer Soybean rust
Bukit Badung (Bali)	Harvesting, threshing and storage very poor Poor seed quality Rain during harvest - weathering of seed Soybean mosaic virus
Surabaya (Ponorogo)	Good drainage (Baqor Desa) Broadcast planting No fertilizer No herbicide Semi loopers Pod borers Leaf eating caterpillars Good spray schedule (maximum input), some farmers spray even at night Easy to get chemicals Rice straw mulch (burning in pacitan only) Hand weeding to feed the animals Plant stand problem Good nodulation Use of Gandasil waste of money Poor seed quality Demonstration trial yield low (may be low yielding variety or inappropriate management) Seed rate low Rice straw used as animal feed Post harvest threshing poor Beanfly kills the plants
Salong (BPP) (Java Tengah)	Beanfly and other insects (leaf eating) Stink bug, soybean mosaic virus, pod blight Anthracnose, bacterial pustule
Karangregi (Java Tengah)	Sandy soil Bacterial pustule Poor plant stand Beanfly
Dumoga, Manado, Mopuya (SULUT)	Beanfly Army worm Snail (Naked) Aphids Stink bugs Pod borer White fly Rain at harvest Variety mixture (Farmers select good seed for planting) Replants if stand is poor Farmers use insecticide Moisture problem due to poor rain for the last two years Threshing loss (manual) Variety tolerant to shading needed for minahasa area to intercrop in corn Variety adapted to high altitude 700 m above sea level needed
Boyalali (Java Tengah)	Severe shading and plant competition problem because soybean intercropped with cassava, pigeon pea and corn Plant stand problem Root rot due to excessive moisture and cool weather Beanfly - tip blight and meristem dying (<i>Dolichostigma</i> sp?) Seed storage Post harvest handling poor Poor seed quality Soybean mosaic virus Variety mixture
Lombok (Sekotong, Jelateng, Ampol, Narmada, Pujung)	Leaf folders Plant stand poor Broadcast planting Purple seed stain Poor post harvest threshing and handling Rain at harvest No inputs Weeds (<i>Cyperus fasciatus</i> and <i>Cyperus rotundus</i>) Pig weed (<i>Portulaca oleracea</i>) Drainage Heavy soil Poor seed storage Poor seed quality Low seed rate Root development good Nodulation good

almost all the places visited. Local or improved varieties used by farmers in different locations are presented in Table 4.

Table 4. Local and improved varieties used by the farmers in the places visited.

Varieties	Location	Maturity duration
No. 1340	Bali	90 days
Silihan	Bali	90 days
Klungkung	Bali	100-105 days
Orba (not suitable)	Bali	
Silihan	Klungkung (Bali)	
Kretek	Bagore Desa (Ponorogo)	90 days
No. 29	Ponorogo	90 days
Presi	Ponorogo	90 days
Orba	Manado	
Krepik	Sulut (Dumoga)	
Orba	Sulut (Dumoga)	
Petek (Purple flower)	Boyolali (Jawa Tengah), Kradenan	
Manalagi	Surabaya Bedali	95 days
Kretek	Surabaya	90 days
Presi	Kulonprogo (Yogyakarta)	90 days
Kretek	"	90 days
No. 29	"	90 days
Poh	Sudirwan (Aceh Utara)	95-100 days
Kipas	"	95-100 days
Orba	Jamboaye	
Kepet	Sekotong (NTB)	

Note: Eventhough the farmers mentioned only one variety, examining the plants and seeds from the farmers fields revealed that all the seeds used were a mixture of more than one variety (many varieties).

12. Since the seed quality is poor, the germination percentage is low. Furthermore the seed rate used is low and as a result, the plant population density is low.
13. Seeds are not treated with fungicide.
14. Majority of the farmers still use broadcasting method of planting. Some places in the field there is dense population while in other pockets no plants. Poor plant density and distribution of plants encourages weed population.
15. In general no weed control is done but in selected locations, hand weeding is practiced [e.g. Sudirwan, Peudada (in Aceh Utara)]. The harvested grassy weeds are used as feed for the cattle.
16. Rice straw mulching is practiced in most locations (exceptions Ponorogo where rice straw is used as animal feed).
17. Insects are one of the major culprits limiting soybean production. The major insect pests are: Beanfly (Agromyza, Ophiomia, Dolichostigma, etc.), Stink bug, pod borer, leaf folder, beet army worm, aphids, snails, and various leaf feeders (prodenia, etc.).

Insecticide use is very limited. Excellent insect control is practiced (may be excessive insecticide use than needed) in Madiun, Ponorogo, Jombang area. Recommendations for specific pests and appropriate time of application are lacking.
18. Soybean mosaic virus, bacterial pustule and bacterial blight were observed in most of the areas. Soybean rust may be a disease during the dry season.

19. Either zero or minimal input is predominant. Optimum or maximum input is rare. Farmers appear to be content with what they get without putting any input (except seed and harvesting).
20. One of major limitations for obtaining good quality seed, and increasing yield is harvesting and threshing. At harvest time there is rain. Farmers harvest immature and mature plants and either lay them flat in the wet field or pile them up like a compost pit. Exposed to alternate wetting and drying, the pods become moldy and the seeds inside the pod either get weathered or rotten with molds. The yield loss in some cases like Bukit Badung (Bali) is probably more than 90 percent.

Threshing by beating with sticks scatters the seeds, break or crush the seeds. The seeds are mixed with dirt and stones. It is also labor intensive and labor availability is becoming a serious problem.

Invariably seeds are not cleaned properly after threshing and generally stored in jute bags resulting in rapid deterioration in seed quality.

Examination of the seed in the market showed mixtures of soybean (yellow, green, brown, black), dirt, stones, weathered seeds, small and big seeds, purple seed stained and SMV infected mottle seeds, insect damaged seeds, mixture of other crop seeds like mungbean and weed seeds.

21. The farmers appear to be unaware of the return or risks involved in the use or non-use of the varying types and levels of inputs at present.

VI. RECOMMENDATIONS AND PROPOSALS FOR MAKING IMPROVEMENTS IN THE PRESENT SOYBEAN CULTIVATION METHODS FOR ADOPTION BY EXTENSION SERVICE

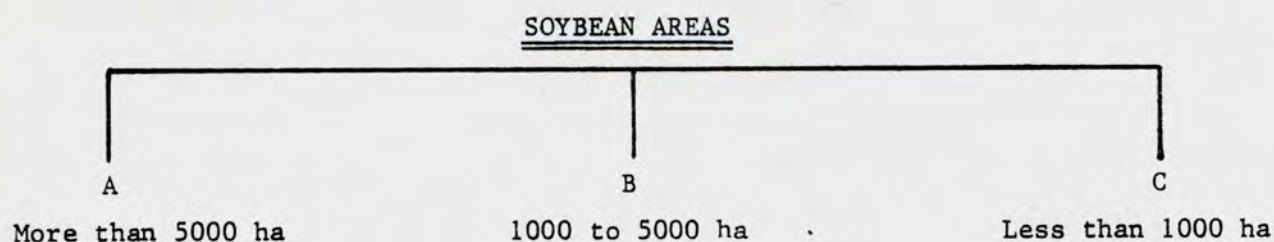
Based on the available technology either in Indonesia or elsewhere,

the recommendations and proposals will be dealt with under three different categories. The first one (short term) for immediate adoption by the extension service to improve and increase production. The second requires minimum of on farm trial to judge the suitability of the technology in terms of appropriateness for locations, and seasons and economic situations before they can be included in the package of recommendations (medium term). The third category requires either technology development by the researcher or extensive as well as intensive evaluation of the technology by the extension service in cooperation with the researcher so that progress can be made to include them in the package of recommendations.

1. Short term approach

- i) Establish specific action oriented program in specific areas like Aceh utara, Sumatra utara, Sulawesi utara, etc. to increase the soybean production area. These areas have potential to produce high yields. Yields of upto 2 t/ha have been recorded with the current system in SULUT and in Aceh.
- ii) Stratify the major and minor soybean growing areas based on different environment and edaphic factors. Suggested outline for classification is given in Figure 1 which may be modified as deemed necessary.

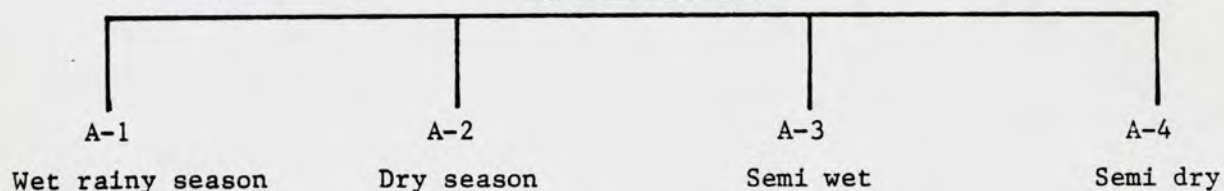
The PPS, PPM and PPL should understand the programs specific to each of the above categories and adjust the recommendations according to their needs. Priorities must be given to urgent and optimum economic inputs.



In each of the above A, B, C areas

classify by:

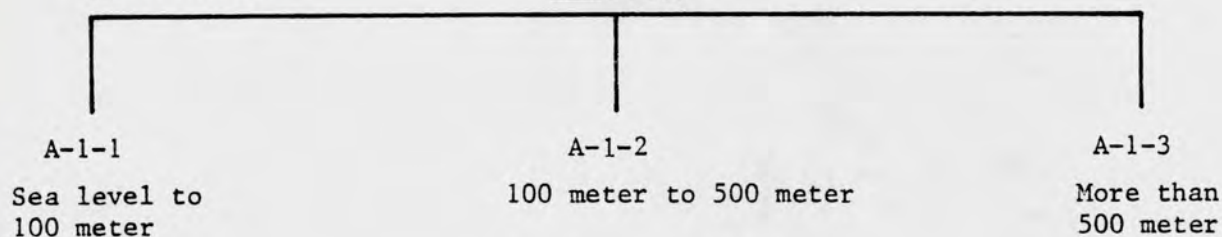
SEASONS PLANTED



In each of the above areas A-1, etc

classify by:

ALTITUDE



In each of the above areas A-1-1, etc.

classify by:

FARM SIZE

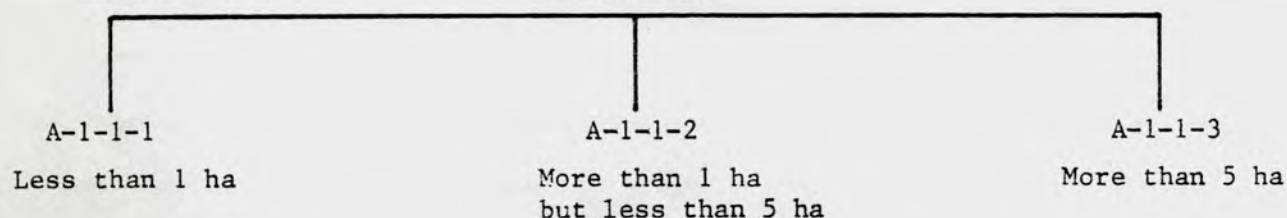


Fig. 1. Suggestion to classify the soybean growing areas based on production area, seasons, altitude, and farm size in Indonesia so that "package of recommended technologies" can be streamlined.

Rainfall dates from each location for the past several years be used to calculate the mean rainfall pattern for each group. Irrigation facilities available should be taken into consideration in offering appropriate recommendations.

- iii) No-tillage rice stubble soybean culture as practiced in rice based cropping system has merits in many parts of Indonesia. Wherever possible adoption of this method with appropriate modifications be attempted. A summary of this technique follows:

After the harvest of the paddy, collect the rice straw and keep them in rows so that soybean planting can be started.

When the soil moisture is just right - not too wet and not too dry - the land is ready for planting. Take the soil in the hand and make a ball. If the soil crumbles or sticks to the hand, then it is either too dry or too wet. If it makes a nice ball, then it is just right for planting. In very sandy soil or very heavy clay soil use your own judgement.

No land preparation is done.

The rice straw must be cut close to the ground when harvesting paddy.

Plant the soybeans either inside the rice stubble or by making a slant hole near the rice stubble. Drop 2 to 5 seeds per hole. The spacing between and within the row is same as the paddy (either 25 cm x 25 cm or 22.5 cm x 22.5 cm). The depth of the hole should be not more than 3 to 5 cm. If available, after planting, use Lasso (Alachlor) @1.5 kg, a.i./ha (or as per label recommendation) along

with Paraquat (Gramoxone) @0.75 kg, a.i./ha (if there are already weeds) to control weeds.

Spread the rice straw as a mulch to conserve moisture and to control the weeds particularly in dry season. In wet season rice straw mulch may be avoided.

In low lying areas where there is excessive moisture at the time of planting, burn the rice straw. By burning the rice straw, the ash absorbs the excessive moisture. The ash adds potash to the soil. Already existing weeds also gets burnt along with the straw.

If moisture is no problem in the field or if irrigation is available, broadcast apply the recommended dose of fertilizer or side dress. But if there is no moisture and irrigation, for the dry field, fertilizer application is not recommended.

Use insecticides and fungicides as per recommendation. Harvest at maturity, dry the plants, thresh properly, clean and store the seed or market.

- iv) Recommend proper drainage ditch either to drain the excess moisture or can be used for irrigation purposes.
- v) Depending upon soil fertility, location, season, type of cropping pattern (fertilizer applied to the previous crop) and moisture availability (based on the results of FAO fertilizer trials) prepare recommendation schedules. In most cases urea is probably unnecessary.

Application of fertilizer close to the seed will harm the seed and therefore, apply the fertilizer away from the seed.

- vi) Selection and use of good quality, live seed will ensure good plant stand. Appropriate plant population density is the key to obtain high yield. Educate the farmers the importance of good quality seed not only for planting but also for consumption (bad seeds may contain aflatoxin which is harmful for humans).
- vii) Establish farmers cooperatives or seed growers in appropriate locations and seasons to ensure production of good quality seeds in sufficient quantity. It may be worthwhile to encourage private seeds men.
- viii) Plan a strategic seed movement program one season and location to another. A systematic seed flow can be organized by studying the planting schedule in different locations. A model scheme has been already prepared by the counterpart team for consideration in some locations.
- ix) Points to be considered to obtain good quality seeds:
 - 1) Avoid mixtures
 - 2) Avoid insect and disease problems
 - 3) Harvest when pods are fully mature and dry
 - 4) If harvested wet or immature, dry the plants by hanging them in shelter and thresh on a sunny dry day.
 - 5) Dry the seeds in the sun to bring the moisture content to less than 10 percent. If the seeds crack easily when pressed with a stone, then the moisture is less than 10 percent. If not, the moisture is more than 10 percent.
 - 6) Clean the seeds from debris, dirt, soil, bad and weed seeds before storing.

- 7) Store the seeds in thick plastic bags tied well or in an air tight container to avoid exchange of moisture. Store them preferably in a cool, dry shaded place at home.
- x) To avoid seed and seedling rot due to excess moisture or unfavourable soil conditions, treat the seeds with Captan, Arasan or Ceresan as per label recommendations before planting (usually 5 gm/kg of seed before planting).
- xi) High plant population density is the key to high yield. Use the following guidelines for recommendation:

A)	<u>Wet season</u>	<u>Dry season</u>
	350,000 to 450,000 plants/ha	500,000 to 600,000 plants/ha

B)	<u>Seed size</u>	<u>Seed rate/ha</u>	<u>Season</u>
	10 gm per 100 seeds	40 to 50 kg	Wet
		55 to 65 kg	Dry
	15 gm per 100 seeds	65 to 75 kg	Wet
		80 to 90 kg	Dry

Note: Seed rate also depends upon percent germination.

- xii) Space planting is better than broadcasting. Therefore, recommend space planting.

<u>Spacing</u>	<u>No. of seeds/hill</u>
25 cm x 25 cm	2 to 5 seeds
30 cm x 15 cm	2 to 3 seeds
40 cm x 10 cm	2 to 3 seeds

- xiii) To control weeds - recommend use of Alachor (Lasso) and Paraquat and rice straw mulching or burning.

xiv) To control beanfly:

Recommend Azodrin or Folimat (dose as per label recommendation).

First spray 3 to 5 days after emergence followed by the second one a week to 10 days after the first spray (@0.25 to 0.5 kg, a.i./ha).

If tip blight due to beanfly is observed at later stages, one more spray is recommended at that time.

xv) To control stink bug:

Recommended to spray Dimethoate @0.25 to 0.5 kg, a.i./ha (as per label recommendation) if 3 to 5 bugs are observed in a meter long rows.

xvi) Recommend to spray Dimethoate @0.25 to 0.5 kg, a.i./ha to control pod borer and aphids when they are observed (number of sprays and time of application need to be determined for each location and season).

2. Medium term approach

i) Purification of local varieties

The breeders arrange to collect all the seeds of major local varieties and try to obtain the description from the farmers. Based on the description try to sort out from the mixture of varieties the individual varieties. Names of the varieties per se are irrelevant. But the major constituent of seed from specific location be sorted out and pure seed of each component multiplied and delivered to each area for further multiplication and extension.

The key farmers or seed growers selected in each area be educated as to the characteristics of the individual pure varieties and the need to maintain it in pure state. PPS, PPM and PPL need to be trained to rogue the off types and keep the variety pure.

Within two years, progress can be made to purify and distribute the pure seed if the program is properly managed and executed.

Characters description of each variety be prepared in a pamphlet form for the PPS, PPM and PPL by the breeders so that the extension staff can easily identify the varieties.

Important, simple, easy to distinguish characters are:

- 1) Seed coat color
- 2) Hilum or eye color
- 3) Seed size range
- 4) Flower color
- 5) Pubescence or hair color
- 6) Days to maturity range
- 7) Leaf type (broad or narrow)
- 8) Disease resistance
- 9) Other remarks

ii) Evaluation of existing improved varieties and introductions in on-farm trials.

1) Suggest to select 8 to 9 varieties

e.g. Orba
Lokon
Guntur
Galungung
G 2120
G 2261
AGS 144
AGS 129
Local variety (in each location)

2) Prepare instructions, field planting layout map, data collection sheets.

- 3) Multiply the seeds of the above entries to conduct trials in about 50 to 100 sites.
 - 4) Use 4 replications.
 - 5) Suggest to use 6 meter x 3 meter plot size for each variety in each replication.
 - 6) Collect minimum a few selected data e.g. time to flowering, time to maturity, yield, disease and insect incidence, seed size, remarks.
 - 7) Obtain temperature and rainfall data from each site.
 - 8) Obtain remarks and comments from the farmers and/or extension staff conducting the trials.
 - 9) Ensure uniform and good plant stand.
 - 10) Analyze the data with computer.
 - 11) Based on the data, select the most promising varieties for specific locations and seasons.
 - 12) Choose 2 to 3 entries for each location/season.
 - 13) Conduct demonstration trial in farmer's field.
 - 14) Use always local variety as check to compare.
 - 15) Decide the best entry.
 - 16) Multiply the seed for distribution.
 - 17) Maintain the purity.
 - 18) The breeders can cooperate with NAEP in this exercise.
- Time frame for the above exercise about 2 years.
- iii) Maximum economic input concept
- Use the data from the demonstration plot and farmers plot in different locations. Based on a critical analysis choose, on a

priority basis, the most appropriate economic input which can not only increase the yield but also increase the income of the farmers considerably.

For example, insecticide application and good plant stand can fill the yield gap considerably and pay off well for the farmers. Therefore, choose those appropriate cost effective inputs.

- iv) Training of PPS, PPM and PPL is necessary. Selected PPS be chosen as trainers and they be sent to AVRDC during coming September, 1983 for production training. Providing additional per diem for one week and air transportation from Taipei to Tokyo will give them an excellent opportunity to participate in the "Symposium on Soybean in Tropical and Subtropical Cropping Systems" organized by the AVRDC from Sept. 26 to Oct. 1, 1983.
- v) In-country training of PPS, PPM and PPL by the local and foreign researchers using the concept "Learning by doing" be given to purify and multiply the seeds, storage of seeds, conducting on-farm trials, etc.
- vi) Training for the PPL, PPM and PPS
Local and foreign experts and researchers should offer periodical on the job "learning by doing" training to PPS, PPM and PPL. At each stage the traditional technology, maximum input technology, minimum input technology and maximum economic yield technology need to be conducted in on-farm trials at strategic locations in each province so that both the extension staff and the PPS, PPM and PPL can see the problems, potential and the prospects of making good profit to the farmers and increasing national production through appropriate technology.

In the course of training each PPS, PPM and PPL will have a complete set of guide lines, and illustrations developed at the conclusion of the training for future use for specific problems.

The schedule of the training:

First stage : Planning based on problems and knowledge of technology available.

Preparation of on-farm trials and planting.

Researchers and trainees for one week to 10 days (duration).

Second stage (Begin 35 days after planting): Evaluation of progress. Discussion of problems and comparing the differences (duration one week).

Third stage (60 days after planting): Pod filling stage. Continue discussion of problems. Organize a field day for the farmers (duration one week).

Final stage (at harvest time): Harvest, analyze the yield. Organize a field day for the farmers. Write the report assessing the merits and demerits of the different methods used. Make an economic assessment.

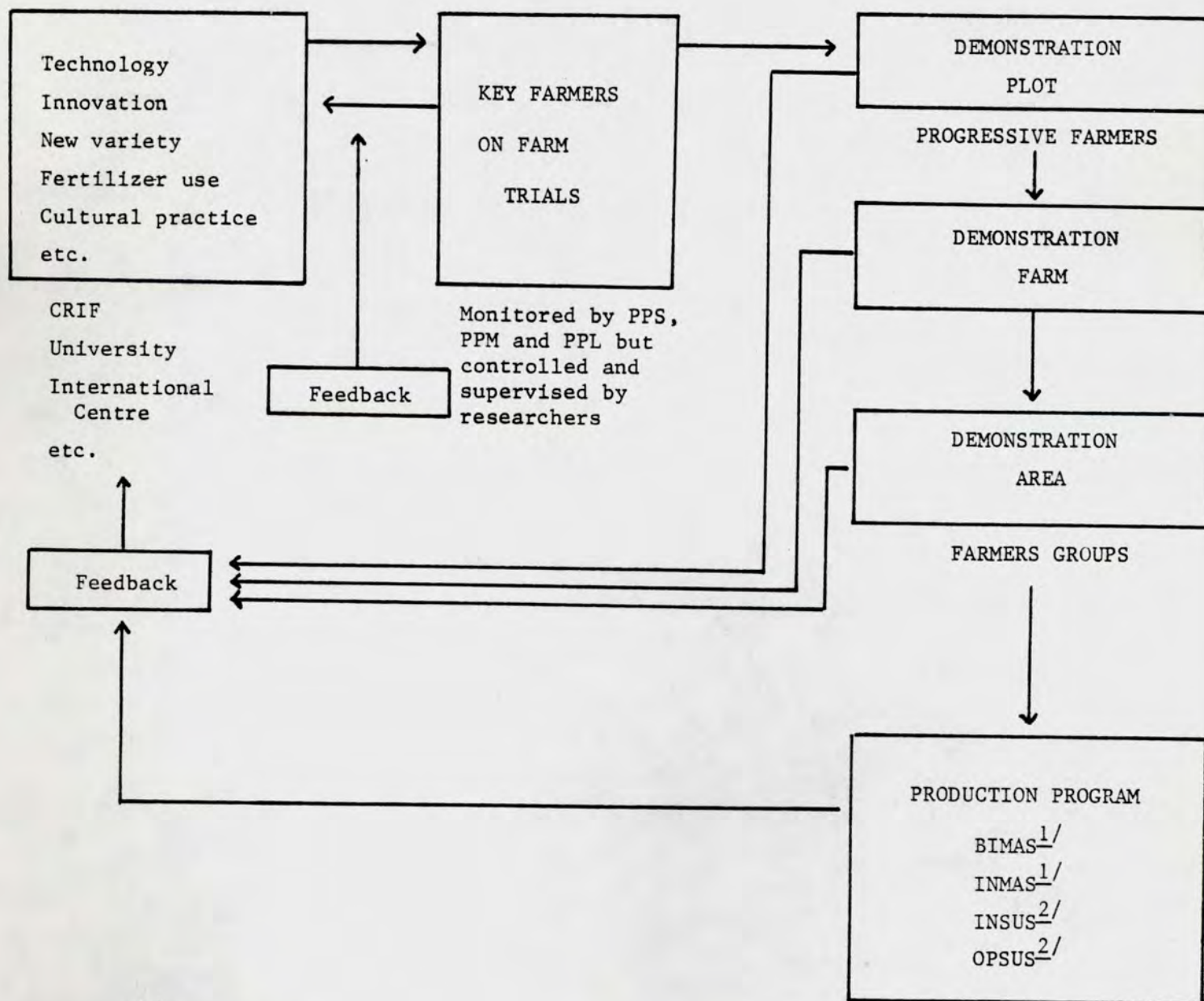
If number of staffs in the research are a limiting factor, then choose one or more of the best locations where we can expect best success and we can bring together at final stage all concerned for observation.

The first batch of trained personnel will form the core for training others in other locations.

vii) Develop and use a soybean thresher to avoid post-harvest losses.

The rice-thresher may be modified to thresh soybean.

viii) In conducting the on-farm trials, the following suggestion and flow chart may be in order.



^{1/} Farmer

^{2/} Group farmer

3. Long term approach

These efforts will require more than 3 years and often 5 years or more time is needed, to make the results reach the farmers fields. For some of the problems technology is at present unavailable. Therefore, they need to be developed.

- i) Developing new varieties resistant to soybean mosaic virus.
- ii) Develop new varieties resistant to bacterial pustule and soybean rust.
- iii) Develop new varieties resistant to beanfly, stink bug, pod borer and leaf eating insects.
- iv) Develop new varieties which are early maturing (70 days to 80 days) and tolerant to flood and drought.
- v) Develop varieties adapted to planting in intercropping or mixed cropping conditions (tolerance to shade and plant competition).
- vi) Develop and streamline Rhizobium production, packaging, transportation and utilization package.
- vii) Evaluate maximum input, minimum input and maximum economical input technologies and prepare a schedule of recommendation for specific locations, seasons and type of cropping system.
- viii) Build up seed storage and germplasm storage facilities.
- ix) Examine the appropriate cropping patterns and planting schedules to maximize production.

In concluding this report, it should be emphasized that for each one of the above three categories of approach namely, short term, medium term and long term, responsibility should be given to the PPS, PPM and PPL with specific targets and jurisdiction and a feed back mechanism to monitor the progress should be included in the program.

Simple, easy to understand recommendation booklets and pamphlets need to be prepared. Radio, TV farm programs, slide shows and field days be organized to illustrate the points for adoption by farmers.

Among the recommendations provided, we should know which ones are adopted and which ones are not adopted by the farmers. We should evaluate why the farmers do not want to adopt. What are the new problems hindering the advance of production? Do we have the technology to combat the new problems?

As mentioned by Mr. Michael Walden, "Extension without research is like a shop without goods". Similarly, research without extension is like goods stocked and locked in godowns.

Appendix Table 1. Lectures given and discussion meetings participated.

Location	No. of staff attended
Langsa, Atceh Timur	30
Banda Aceh	35
Atceh Utara	25
Yogyakarta	200
Bali	10
Surabaya	100
Manado, Sulewesi Utara (SULUT)	40
Dumoga (SULUT)	12
Manado (SULUT)	45
Boyolali	10
Bandungan	54
Mataram (Nusa Tengah Barat)	30
Bogor	100
Jakarta	40

Appendix Table 2. Key people met and discussed in Indonesia.

<u>Name & address</u>	<u>Postal address</u>	<u>Telephone No.</u>
Anand D. Adhikari U.N.I.D.O. Badan Koordinasi Penanaman Modal Jl. Gatot Subroto No. 6 Jakarta, Indonesia	c/o UNDP P.O. Box 2338 Jakarta	512008 Ext. 68
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Hendro Basuki General Manager P.T. Bibit Baru P.O. Box 632 Medan Indonesia		326517, 323745
Ir. Rustam Bustami Dinas Pertanian Tanaman Pangan Propinsi Daerah Istimewa Aceh Jln. Jend. A. Yani No. 19 Banda Aceh, Indonesia		21301
Ir. Sufrin Bustami Maintenance Spv. P.T. Arun Natural Gas Liquefaction Co. Fac. Dev. & Mtnce. Batuphat, Indonesia		322006-25987 Ext. 1149
Harbrinderjit Singh Dillon Agro Economist K. H. Ismail #50 Duren Tiga, Jakarta Jelatan, Indonesia	P.O. Box 3005/JKT Jakarta	
Ir. Eudarto Djaswadi Kepala Dinas Pertanian Tanaman Pangan Daerah TK.I NTB Jln. Pejangik 40 Mataram NTB, Indonesia		23652

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Ir. Imam Soedjarwo Gani Dinas Pertanian Tan. Pangan Jl. Sriwijaya 81 Ponorogo, Indonesia		81041
Dr. Hadijono Director of Food Crops Production Development BIMAS, Jakarta, Indonesia		
Ir. Zamzami Haitami Dinas Pertanian Tanaman Pangan Jln. Ahmad Yani No. 19 Banda Aceh, Indonesia		21301, 23640
Ir. Lely Hilman Training Section National Agricultural Extension Project (NAEP) Jl. AUP (Kompleks SP Bimas) Kotak Pos 21/Pasar Minggu Jakarta Selatan, Indonesia		782274, 782413
Amir Husin Kepala Dinas Pertanian Tanaman Pangan Daerah TK.II Aceh Utara Jl. Samudra No. 7 Lhokseumawe, Indonesia		21019
S. Lampe P.O. Box 2338 Jakarta, Indonesia		
Nazir A. Lubis Dinas Pertanian TK.I Sumatera Selatan Jl. Kapt. Anwar Sastro Palembang, Indonesia		

<u>Name & address</u>	<u>Postal address</u>	<u>Telephone No.</u>
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Ir. Ishak Noer Dinas Pertanian Tanaman Pangan Kabupaten Lombok Barat Majeluk-Mataram, Indonesia		23870
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Ir. D. A. Sihombing Head of Agricultural Extension Service Dati I North Sulawesi Jl. Eddy Gagola Manado North Sulawesi, Indonesia		51721 (umum); 51792 (IPTRP)
Tom Smis Secondary Crop Intensification Programme, FAO c/o UNDP Office P.O. Box 2338, Jakarta Indonesia		
Ir. Dewa Nyoman Suarta Cabang Dinas Pertanian Kab. Dati II Klungkung Indonesia		52

<u>Name & address</u>	<u>Postal address</u>	<u>Telephone No.</u>
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Prof. Dr. Ir. Triharso Virologist Faculty of Agriculture Gadjah Mada University Yogyakarta, Indonesia		3062
Michael J. Walden Chief, Agriculture Division World Bank Arthaloa Building, 8th Floor 2 Jl. Jenderal Sudirman Jakarta, Indonesia	P.O. Box 324/JKT Jakarta	587871
Mr. W. H. Wang ATM/ROC P.O. Box 15, Ambarawa Semarang, Indonesia		
Honourable Junior Minister Professor Wardoyo Junior Minister for Increasing Food Production Ministry of Agriculture Jakarta, Indonesia		
Wiharto Food Crop Agriculture Service Propince of Irian Jaya Jayapura, Indonesia		
Dr. Soenarso Wirjoprajitno Director General of Food Crop Agriculture, NAEP Jalan AUP (Complex SP. BIMAS) P.O. Box 21/Psm. Pasarminggu Jakarta Selatan, Indonesia		782274-782413

<u>Name & address</u>	<u>Postal address</u>	<u>Telephone No.</u>
Mr. S. Yahya PPM, BPP, Langsha DPTP, Langsa Aceh Timur, Indonesia		
Nusyirwan Zen Secretary to the Directorate General of Food Crop Agriculture Jalan Salemba Raya 16 Jakarta Pusat Indonesia		882625

Appendix 3

Terms of Reference for
Palawija Crops Consultants for the
National Agricultural Extension Project

1. Background. The Government of Indonesia is taking steps to improve production of palawija crops, particularly maize, groundnuts, soya beans/mung beans and cassava, to bring the production technology for these crops closer to the high standards which have been achieved over the last decade in rice production.
2. Whilst these palawija crops are considerably below rice in terms of area planted and tonnages produced, they are grown on a significant scale and for many farmers in the rainfed areas, represent the major crops which they produce. However, present average yields for these crops is low and there is a large potential for improving yields through the early introduction of improved technology and husbandry. The following table demonstrates the importance of these crops and the potential for increasing productivity.

Summary of Area Planted, Production and Yield/ha - 1981

	<u>Area Harvested</u> (ha)	<u>Total Production</u> (Tonnes)	<u>Yield/ha</u> (Tonnes)
Maize	2,955,039	4,509,302	1.5
Groundnuts	507,958	474,591	0.9
Soya Beans	809,978	703,811	0.9
Cassava	1,387,536	13,300,911	9.6

3. The Directorate General (Food Crops, Agriculture), operates an extension services throughout all Provinces which follows the Training and Visits system. Some Provinces, which have only recently introduced the T & V System are still in process of developing field coverage, although the service is growing rapidly. At the present time the service employs some 14,000 field workers (PPLs), 2600 field supervisors (PPMs) and 600 Subject Matter Specialists (PPS) operating from about 1300 Rural Extension Centers.

4. The Objective.

The broad objective of the consultancy is to review available technologies for improved production practices for maize, groundnuts, soya and mungbeans and cassava and make recommendations for increasing the capabilities of the PPS in these improved production packages so that they in turn can give training to PPMs and PPLs for extension to farmers.

5. Arrangements have been made for the consultant to obtain first hand information of the growing conditions of the crop and be appraised of the status of development work in improving the crop agronomy. A counterpart team of Indonesian specialists will work with the consultant who will be expected to closely liaise with the team during his assignment.

6. Specific Tasks. The consultant should:

- a. Review the present cultivation practices for the specific crop and the availability of packages for improved production for the crop.
- b. Identify possible improvements in the present cultivation methods.
- c. Prepare proposals for introducing improvements.
- d. Recommend practical actions to be taken to introduce improvements in the extension service and assist with the design of subject matter training to facilitate a rapid assimilation of the improvements by the extension organisation.
- e. Participate and present a paper on the specific crop in the Yogyakarta non-rice crop seminar to be held on March 28-31, 1983.

Appendix 4

AGRONOMIC PROBLEMS AND POSSIBLE PRACTICES FOR
EVALUATION AND EXTENSION IN SOYBEAN IN INDONESIA

S. SHANMUGASUNDARAM

PAPER PRESENTED AT THE SEMINAR ON
PALAWIJA CROPS HELD AT YOGYAKARTA
FROM MARCH 28 TO 31, 1983

YOGYAKARTA

1983

AGRONOMIC PROBLEMS AND POSSIBLE PRACTICES FOR
EVALUATION AND EXTENSION IN SOYBEAN IN INDONESIA^{1/}

S. Shanmugasundaram^{2/}

Soybean is one of the major cultivated grain legumes and an important source of plant protein in the Indonesian diet. Although Indonesia has one of the largest hectareage under soybean, among the south and southeast Asian countries, both the area and the average yield remained rather static over the years.

Based on my past association and experience with Indonesia and my present observation so far, I would like to suggest some of the appropriate agronomic technology and agronomic principles which may be evaluated with suitable modifications in selected soybean growing areas and in different seasons. Based on the results obtained from the above evaluations, necessary meaningful recommendations may be prepared in a stepwise fashion, if possible with appropriate easily understandable illustrations for use by PPM, PPL and PPS for extension to the farmers.

I. EVALUATION OF THE PROBLEMS

Before embarking on offering suggestions, the problems should be analysed and understood. The problems may fall into one or more of the following categories:

1. Cropping systems
2. Farming systems

^{1/} Paper presented at the seminar on Palawija crops held at Yogyakarta from March 28 to 31, '83.

^{2/} Soybean Breeder and Legume Program Leader, Asian Vegetable Research and Development Center, P.O. Box 42, Shanhua, Tainan 741, Taiwan.

3. Environmental considerations
4. Soil types
5. Suitable cultivars and seed quality
6. Tillage practices
7. Plant population density
8. Fertilizer recommendations
9. Weed control
10. Water management
11. Pest management and
12. Disease management.

1. Cropping System

Soybeans are invariably included in a rice based cropping system in Indonesia. At present depending upon locations, the following cropping systems are being used by the farmers:

PADDY	/	PADDY	/	SOYBEAN
PADDY	/	SOYBEAN	/	FALLOW
PADDY	/	SOYBEAN	/	SOYBEAN
PADDY	/	SOYBEAN	/	HORTICULTURE CROPS
PADDY	/	CORN INTERCROP	SOYBEAN	
SUGARCANE		/	SOYBEAN	
CORN		/	SOYBEAN	
SOYBEAN	/	SOYBEAN	/	SOYBEAN

Is the present cropping system effective in increasing the national production of desired crops and is there better system that can be recommended? Simultaneously, is the present system profitable to the farmers? Will the new system increase the profit margin and reduce the risk to the farmers?

2. Farming System

Majority of the farmers own and manage cattle. The cattle need feed. In many areas after harvesting paddy, the farmers would like to leave the land fallow so that the animals can have free grazing area. Inclusion of soybean as a crop in the system requires identification of feed source for the cattle. Which is more profitable? Free grazing or cropping soybean and purchasing feed for the cattle?

3. Environmental Considerations

Among the environmental factors, temperature, rainfall distribution and solar radiation are the most important factors which determine the type of agronomic practices to be used, the choice of cultivar to be selected and ultimately the production of the crop.

Too high or too low temperatures adversely affect the crop. Similarly too much or too little moisture (rainfall) also limit crop production. Prolonged cloudy weather will restrict photosynthesis and may reduce yield.

Soybean is sensitive to variations in photoperiod and temperature (especially night temperature). Photoperiod is not a serious concern for Indonesia. However, depending upon the altitude ranges, where soybeans are grown the fluctuations in diurnal and nocturnal temperatures will dictate the type of cultivar to be grown to obtain high productivity.

In short, we are confronted with the problem of identifying technology and cultivar needed for lowland, highland, wet season and dry season.

4. Soil Types

Indonesia is a country with diverse agro-eco-systems. The soil types where soybeans are cultivated at present and the potential areas where they can be extended vary greatly. Of particular concern are the soils with low pH with high aluminium content or high pH with poor iron and manganese availability which are detrimental to soybean growth.

5. Suitable Cultivars and Seed Quality

The data from the Directorate General of food crops, Dept. of Agriculture in Jakarta showed that the leading cultivars grown by farmers in major production regions were: 1. No. 29, 2. No. 16, 3. No. 945, 4. No. 1378, 5. Sinyonya, 6. Davros, 7. Shakti, 8, Ringgit, 9. Americana and 10. Local cultivars.

In addition, since 1974 Orba is being grown by farmers in selected regions. Similarly, G 2120 from AVRDC is grown by farmers in Surabaya area.

Recently several new cultivars (Lokon, Guntur, Galunggung) have been developed. Some of them, namely Lokon and Guntur, are early maturing. But the extent of their extension is unknown. Why?

Majority of the soybeans grown by the farmers are mixtures and the quality, both for consumption and stock seed is questionable. This is a serious problem to be reckoned with.

Diverse source of germplasm and new potentially valuable selections are available from the International Centers. Have they been fully exploited for the national interest?

The quality of seeds harvested during the rainy season is rather poor. Attention need to be focused to improve the seed quality of the rainy season crop.

6. Tillage Practices

In areas where soybeans are grown during the dry season majority of the farmers use zero tillage and broadcast the seeds and cover with rice straw. In contrast, in areas with pronounced wet season, farmers generally cultivate the field and either broadcast the seeds or drill the seeds.

For the wet season crop the weeding, pest and disease control measures are done but for the dry season crop, they are generally not done.

The major problem is that there is a need to evaluate the basic appropriate inputs for different regions and devise recommendations for specific regions to increase soybean production.

7. Plant Population Density

The average yield of soybean in the U.S.A. is about 2.2 t/ha. Obtained in 130 to 140 days. To obtain a similar average yield in the tropics in about 80 to 100 days or less, we need to use a unique strategy.

Generally in the U.S.A. and other temperate countries, the plant population density is about 200,000 to 250,000 plants/ha. Increased yield per plant contributed to increased productivity in the temperate countries. How to increase yield in the tropics with short maturity duration?

In Indonesia, invariably soybeans are planted by broadcast. Even when they are space planted, the spacing between and within row is too wide to have high plant density. Furthermore, the seed quality is poor resulting in poor plant stand.

8. Fertilizer Recommendation

Soybean is a legume. Legumes generally obtain their nitrogen through their symbiotic relationship with Rhizobium sp. However, depending upon the soil fertility there is a need to add N, P and K.

The FAO/Indonesia project is trying to identify the appropriate recommendation for different regions. The recommendations probably will vary with cultivars and locations and seasons. We need to be cognizant of the economics of the recommendations as well.

9. Weed Control

The distribution of weed species in different regions and in different seasons may vary. It is essential to define the appropriate mode and time of weed control which will be economical to the farmer and effective to increase soybean production.

10. Water Management

The critical time for applying irrigation to the soybean is at flowering and at pod filling stages. Excess moisture or drought at the critical time may hamper soybean productivity. Therefore, it is important to determine the need for irrigation or drainage at the critical times to obtain optimum production.

11. Pest Management

What are the major insects which limit soybean production in specific seasons in specific grow regions? There is a dire need to generate such information and devise economical and appropriate recommendation to control the pest to obtain maximum economic yield.

12. Disease Management

Similar to the pest, there is a need to identify the major diseases limiting soybean production by regions and by seasons. Based on that information identify the methods of controlling the problems through economical means.

II. SUGGESTIONS FOR EVALUATION AND POSSIBLE EXTENSION IN SOYBEAN

1. Cropping System

Network trial of IRRI may be extended to include the potential soybean growing areas. In addition to looking at modifying soybeans, it is equally important to look at modifying paddy and other crops simultaneously to suit the specific needs. Regardless of the cropping system chosen, the system should aim for high productivity of paddy and soybean and bring high return for the farmer for his input.

Continuous cropping of soybean may be harmful in some regions while it may be profitable in other regions which need to be explored.

2. Farming System

Evaluation should be carried out to determine the advantages of growing soybean instead of leaving the land fallow to allow free grazing

by cattle. The results from such trials, may convince the farmers that it is better to grow soybean and feed the cattle with purchased feed or partitioned land.

3. Environmental Considerations

The areas where soybeans are currently grown and the other potential areas where soybean can be extended may be classified based on the temperature and rainfall patterns. Based on such classifications and evaluation of cultivars and agronomic practices in different zones, cultivars and package of technology may be streamlined for extension.

For long range problems, suitable environmentally insensitive soybean genotypes may be evaluated for possible adoption.

4. Soil Types

Appropriate genotypes adopted to specific soil types (especially the problem ones) need to be evaluated for possible extension. Alternatively, soils may be ameliorated so that the soybeans can be grown profitably.

5. Suitable Cultivars and Seed Quality

High yielding, early maturing, widely adapted (specifically suited to tropics) soybean selections from AVRDC, IITA and INTSOY should be received and be tested in strategic locations all over Indonesia in different seasons. Selected entries may be multiplied for extensive evaluation. The breeders and the agronomists may cooperate in such a adventure.

Indonesia should be proud to have a number of small seeded local cultivars which have very good seed storage quality. Some of them are also resistant to weathering. They should be exploited further to combine high yield.

At AVRDC, genotypes are available which are resistant to weathering without hard seed coat.

6. Tillage practices

The "No-tillage rice-stubble soybean culture" saves time, prevents weed problem and saves labor cost for the farmer. Therefore, its usefulness in soybean cultivation both in the dry as well as wet season should be explored. Appropriate modifications to suit local condition should be made without hesitation. In our trials no tillage is always better than tillage.

7. Plant Population Density

To obtain high yield in the tropics in short duration, the key is high plant population density. The per plant yield may be low but the per unit area yield will be high with high plant population density. Depending upon the cultivar, the plant population density need to be adjusted in different seasons to obtain high yield.

8. Fertilizer Recommendation

The FAO/Indonesian project is identifying the fertilizer requirements in different regions and different season.

The role of Rhizobium and obtaining free nitrogen should not be lost sight of. Furthermore, it is important to recognize different recommendations. Therefore, trials need to be conducted to meet the above objective.

9. Weed Control

At least in Sumatra, the major weed problem appears to be nutsedge, Cyperus rotundus. It may be controlled better through a herbicide schedule than through hand weeding. The usefulness of LASSO (ALACHLOR) and STOMP may be explored.

The economics and efficacy of hand weeding once or twice compared to herbicide need to be investigated.

10. Water Management

One irrigation at flowering and another at pod filling stage are the most critical for soybean.

Prolonged waterlogging unduly affects the root system. In rainfed soybeans, especially in Aceh the main consideration should be good drainage.

Trials with ridges and furrows, zero tillage with drainage ditches should be compared with traditional cultivation.

11. Pest and Disease Management

It is essential to identify the most important yield limiting insect pests and diseases for different regions and different seasons.

For the farmers in each zone, evaluate an integrated pest or disease control measures using appropriate resistant cultivars where available or with economical chemical or cultural control measures where genetic resistance is unavailable.

III. CONCLUSION

A concerted effort to introduce appropriate available cultivars and

suitable highly productive agronomic technology which can produce maximum economic yield should be evaluated and extended through the extension workers.

The seed of the suitable cultivars should be produced by the key progressive farmers grouped as seed growers, in suitable locations, under the supervision of trained PPLs. Such good quality true to type labelled seeds should be distributed to the other farmers through either private or Government agency.

The PPL, PPM and PPS should have a complete guidelines and illustrated instructions for ready reference and extension to the farmers. Such package of practices should be developed for each soybean growing zones through evaluation and they should be periodically revised based on new information and findings.

There is great scope to increase soybean production through a combination of increased hectarage and increase in per unit production in Indonesia.

OFFICE MEMORANDUM

TO: FILES

DATE : May 4, 1983

FROM: J. M. F. Greenwood (Acting Chief, RSI Agriculture Division)

SUBJECT: Transmigration - General

Attached is an internal GOI document, listing problems at various transmigration sites, and suggested remedial action. The list is of general background interest; however, it should not be mentioned in discussions with GOI as it has been received informally.

Enc.

cc: Messrs M.A. Hussain, Klempin, Wiranto
Prins, Draper, Khan

File: Trans Gen.

DNNotley/lk

List of Less Successful Transmigration Projects and
Their Necessary Treatments (Including Critical Land)

May 1983

Province/ Location	Occupation			Problem	Suggested Action to be taken	Estimated	Remarks
	Year	KK	Persons			Costs	
I. D.I. Aceh							
1. Krueng Tadu	1980	1,824	7,936	a. Soil is less fertile because of erosion of upper layer which prevents the full growth of vegetation and resulting in chlorosis. b. Land slope is in most cases more than 8% which make it prone to erosion.	- Providing urea TSP, NPK & gandasil. - Planting of terrace-strengthening vegetation. - Planting of grass for livestock. - Intensifying the soil productivity by animal husbandry development using livestock manure as main ingredient (mix-cropping). - Growing food crops and vegetables. - Introducing and developing biogas energy. - Conducting demonstration on farming pattern and giving guidance and extension. - Terracing. - Tree crops? rubber	600,000,000 Rp 330,000/hk	- All costs including donations to KUD for agricultural intensification. - To Krueng Tadu, Sabulus, SKP A, B & C Bereng Bengkel, Babulu Darat, Marisa II & Aimas assistance given to develop village industry (soya-bean flour, soya-bean cake and/or manufacturing cassava). - Corn shelling machine will be given to all locations.
2. Lamie (Melabah)	1981	1,135	4,605	a. Soil is less fertile because of erosion of upper-layer which prevents the full growth of vegetation, vegetation growth is less than desirable and resulting in chlorosis. b. Land-slope is in most cases more than 8% which make it prone to erosion.	- Providing urea, TSP, NPK & gandasil. - Terracing. - Planting of terrace-strengthening vegetation. - Planting of grass for livestock. - Intensifying the soil productivity by animal husbandry development using livestock manure as main ingredient (mix-farming). - Growing food crops and vegetables. - Introducing and developing biogas energy. - Giving guidance & extension & conducting demonstration on farming pattern. - Tree crops? rubber - Leasing	cash 425 M	- Krueng Tadu, Siak I, II, Rokan I, II, Kuala Cinaku, Dendang I, II Air Sugihan, Sintang, Mayoa I, Angkona II & Aimas II will be provided with rice-hullers.

No.	Province/ Location	Occupation		Problem	Suggested Action to be Taken	Estimated Costs	Remarks
		Year	KK Persons				
3.	Sabulussalam	1982	685 2,963	a. The farm land I (350 ha) is swampy & covered with water during the whole year, the soil organic material is immature affecting and preventing the full growth of vegetation. b. The prepared dry land (150 ha) upper layer is eroded and contains high contents of aluminium which also prevent the full growth of vegetation & causing chlorosis & inferior growth of vegetation.	- Deepening the tributaries, building a drainage system, removing tree-stumps. - Re-designing the operational system of the settlement. - Changing the farmer system from food crops to tree crops culture intermixing with food crops. - Terracing. - Planting of terrace-strengthening vegetation. - providing urea, NPK, TSP and gandasil. - Giving guidance and extension in the introduction of a farming pattern.	975,000,000 <i>Rp 570000/KK</i>	
		82/83	1,025 4,535	c. Land-slope is more than 15% which is easily affected by erosion.			
4.	Jagong/Jagad I	81/82	500 1,903	The connecting road to Kota-Kecamatan Linge (Isaq) is heavily damaged.	- To build a 24.5 km long road. - To provide processing equipment. - Giving guidance and extension to increase agriculture products and KUD activities.	1,000,000,000	
II. <u>N. Sumatra</u>							
5.	Sinunukan	1980	500 2,100	Farm land I overflowed with water preventing the growth of vegetation and possibility of becoming toxic. <i>Dr</i>	- Building of a system of drains (± 90 km), dividing rice fields and providing urea, NPK, TSP and gandasil. - Furnishing with food crop and vegetable seeds. - Giving guidance and extension and conducting demonstration on farming pattern.	215,000,000	
6.	Batang Pane	1982	500 2,139	Parts of house yard and farm land I contain sand which make it easy for dehydration and prevent full growth of vegetation and cause chlorosis. <i>Dr</i>	- Administering urea, NPK, TSP and gandasil. - Planting of high organic producing vegetation. - Water and soil conservation. - Distribution of food crops & tree crops & vegetable seeds. - Giving guidance & extension and conducting demonstration on farming pattern. - Supplying livestock as a support to increase soil productivity.	175,000,000	

No.	Occupation			Problem	Suggested Action to be Taken	Estimate	Remarks
	Year	KK	Persons			Costs	
III. Riau							
7. Siak I	80/81	2,000	8,139	House yard & farm land I covered with water during rainy season making normal vegetation growth difficult. <i>Dr</i>	- Digging tertiary canals and cleaning artificial rivers. - Administering urea, NPK, TSP fertilizers and gandasil. - Furnishing with food crop seeds.	830,000,000	
8. Siak II	80/82	1,550	5,875	Land is covered with thick peat and water causing dwarf-size vegetation and difficulty to grow. <i>So</i>	- Building/repairing drainage canals. - Providing urea, NP,, TSP and gandasil. - Providing seeds for foodcrops. - Giving guidance and extension and conducting demonstration on farming pattern.	560,000,000 <i>livestock</i>	
9. Rokan I	81/82	1,550	5,292	a. Land in Block C & D always underwater in the rainy season. b. Land in Block E (97 KK) always underwater in the rainy season and intrusion of sea water causing dwarf-size vegetation and cessation of vegetation growth. <i>Dr</i>	- Renovating of primary canals and the effective use of the irrigation system to stem the sea water intrusion. - Moving to another location (97 KK) from Block E to Block A & B which conditions are relative better. - Providing urea, NPK, TSP and gandasil. - Providing seeds for foodcrops. - Giving guidance and extension and conducting demonstration on farming pattern.	760,000,000	
10. Rokan II	81/82	1,459	6,009	a. Parts of house yard under water, drains are not functioning. b. Land in Unit III Block B covered with sick immature peat (more than 2.5 m) causing difficult growth of vegetation. <i>Dr</i>	- Renovation of the primary canals and building of tertiary canals and watergates for primary canals. - Building of navigation canals in the direction of Rokan river and Block B to other locations. - Providing urea, NPK, TSP and gandasil. - Providing seeds for foodcrops & vegetables. - Giving guidance and extension and conducting demonstration on farming pattern.	775,000,000	

No.	Province/ Location	Occupation			Problem	Suggested Action to be Taken	Estimated Costs	Remarks
		Year	KK	Persons				
11.	Kuala Cinaku	80/82	1,700	6,985	The primary & tertiary canals are not functioning, shallowing of canals & accumulated with dirt which result in flooding the house yards and farm lands especially during the rainy season. This has caused damage to vegetation. <i>Dr</i>	<ul style="list-style-type: none"> - Providing urea, NPK, TSP and gandasil. - Renovating/enlarging the primary and secondary canals. - Dredging and cleaning the canals. - Providing seeds for foodcrops. - Giving guidance and extension and conducting demonstration on farming pattern. 	600,000,000	
12.	Belilas/Rengat	81/82	2,000	8,217	a. Farm land contains quartz sand causing dwarf-size plants without yield (Belilas I). b. The greater part of Belilas II land contains quartz sand making agriculture difficult. <i>So</i>	<ul style="list-style-type: none"> - Providing urea, NPK, TSP and gandasil. - It is necessary at Belilas II to relocate 534 KK to a more potential settlement area. - Providing seeds for food crops, tree crops and vegetables. - Giving guidance and extension and conducting demonstration on farming pattern. 	700,000,000	
IV. <u>Jambi</u>								
13.	Dendang I	1980	1,250	5,491	Farm land continuously underwater and covered with thick peat causing dwarf plants with no yield. <i>Dr</i>	<ul style="list-style-type: none"> - Improving drainage canals. - Providing urea, NPK, TSP and gandasil. - Providing seeds for foodcrops. - Giving guidance and extension and conducting demonstration on farming pattern. 	425,000,000	
14.	Dendang II	1980	750	2,838	Farm land continuously under water and covered with thick (more than 1 m) peat causing dwarf plants with no yield. <i>Dr</i>	-----Same as above-----	270,000,000	
V. <u>Bengkulu</u>								
15.	Ktahun WPP II	1980	2,000	8,283	The greater part of Marisa has a slope of more than 15% which makes it easy for erosion. This has caused diminished fertility of the soil and defective growth of vegetation. <i>Se</i>	<ul style="list-style-type: none"> - Terracing. - Planting of terrace-strengthening and terrace-covering vegetation. - Providing urea, NPK, TSP and gandasil. - Providing seeds for foodcrops and tree crops. - Giving guidance and extension & conducting demonstration on farming pattern. 	640,000,000	

No.	Province/ Location	Occupation			Problem	Suggested Action to be Taken	Estimate Costs	Remarks
		Year	KK	Persons				
16.	Ketahun WPP V	1981	1,905	7,761	a. Land is less fertile caused by erosion of upper layer and resulting in dwarf plants and chlorosis. b. Part of the land has a slope between 10-15% which makes it easy for erosion.	- Providing urea, NPK, TSP and gandasil. - Providing seeds for foodcrops, tree crops and vegetables. - Terracing. - Planting of terrace-strengthening and terrace-covering vegetation. - Giving guidance and extension & conducting demonstration on farming pattern.	640,000,000	
VI. S. Sumatera 17. Air Sugihan I 1980 1,400 6,164 18. Air Sugihan II 19. Air Sugihan III 20. Air Sugihan IV 21. Air Sugihan VI Betung I ?								
			1,400 +5 7,000	6,164	a. Land covered with thick peat (more than 1.5 m) which caused vegetation to die young, chlorosis and defective growth. b. Primary & secondary canals have not yet functioned. c. Tertiary canals have not been built.	- Repairing the primary and secondary canals. - Building tertiary canals. - Providing urea, NPK, TSP and gandasil. - Providing seeds for foodcrops. - Giving guidance and extension and conducting demonstration on farming pattern.	3,885,000,000	
VII. W. Kalimantan 22. Sintang SKP A 1981 1,464 6,183 23. Sintang SKP B 81/82 1,250 5,426								
					a. House yard and farm land I contain quartz sand causing dwarf plants, defective vegetation growth and no yield. b. Erosion of upper layer. c. Land slope for the greater part is more than 8% which makes it easy for erosion.	- Providing urea, NPK, TSP and gandasil. - Providing seeds for second crops (palawija), vegetables & foodcrops. - Terracing. - Planting of terrace-strengthening and soil covering vegetation. - Giving guidance and extension and conducting demonstration on farming pattern.	950,000,000	
24.	Sintang SKP C	1982	2,050	9,247	a. The presence of acidic clay soil especially in the sunken areas, erosion of upper layer causing dwarf plants, defective growth of vegetation and chlorosis. b. Waving topography of more than 8% causing high rate of erosion.	- Terracing. - Planting of terrace-strengthening and soil covering vegetation. - Providing urea, NPK, TSP and gandasil. - Providing seeds for food crops, second crops and vegetables. - Planting of organic rich vegetation. - Giving guidance and extension & conducting demonstration on farming pattern.	655,000,000	

No.	Province/ Location	Occupation			Problem	Suggested Action to be Taken	Estimate Costs	Remarks
		Year	KK	Persons				
25.	Satai	1982	393	1,894	a. A thin arable layer, defective of nutrient resulting in foodcrops failure, dying young and chlorosis. b. A waving topography which makes it easy for erosion.	- Providing lime or treating the land with lime. - Terracing. - Planting of terrace-strengthening and soil covering vegetation. - Providing urea, NPK, TSP and gandasil. - Changing the foodcrops farming pattern into a tree crops farming pattern. - Increasing the soil productivity by mix farming and using manure as main ingredient for compost.	285,000,000	
VIII. C. Kalimantan								
26.	Bereng Bengkel	1980	500	2,112	Land covered with thick peat (4-5 cm), not overflowed with water and with low pH (3.8) resulting in dwarf plants and defective growth of vegetation and chlorosis.	- Providing urea, BPK, TSP and gandasil. - Providing seeds for second crops, & vegetables and stocks for poultry. - Treating the land with lime to increase pH. - Developing village industry. - Assisting the development of poultry. - Giving guidance and extension and conducting demonstration on farming pattern.	225,000,000	
IX. E. Kalimantan								
27.	Babulu Darat	1979	1,046	4,356	a. House yards at Block A and B for the greater part contain quartz sand stretching to the East, with low soil productivity which causes defective growth of several vegetation, dwarf plants and chlorosis and dying young. b. A section of the land has a slope of more than 8% causing erosion and the fast reduction in soil fertility.	- Action to conserve soil by building bench-terraces accompanied with planting of terrace-strengthening and soil covering vegetation. - Implementation of planting pattern and exact planting time by providing fertilizer inputs such as urea, NPK, TSP and gandasil and seeds for foodcrops and vegetables. - Giving guidance and extension and conducting demonstration on farming pattern.	340,000,000	

No.	Province/ Location	Occupation		Problem	Suggested Action to be Taken	Estimate	Remarks	
		Year	KK Persons			Costs		
28.	Sepaku Semoi <i>IRR</i>	77/78	1,999	9,314	Land slope for most parts is more than 8% which makes it easy for erosion and reducing in soil fertility and productivity.	<ul style="list-style-type: none">- Soil conservation by building bench-terraces accompanied with planting of terrace-strengthening vegetation and application of the right farming pattern such as strip cropping, mix cropping etc.- Providing non-standard inputs such as NPK, urea,TSP, gandasil, pesticides and seeds for food and tree crops.- Giving guidance and extension and conducting demonstration on farming pattern.	635,000,000	
29.	Semoi III	81/82	232	998	-----ditto-----	-----ditto-----	175,000,000	
30.	Teluk Dalam	80/81	2,000	8,074	-----ditto-----	-----ditto-----	635,000,000	
31.	Separi	1981	1,985	8,074	-----ditto-----	-----ditto-----	630,000,000	
X.	<u>N. Sulawesi</u>							
32.	Marisa II <i>IRR</i> <i>(Small - reds)</i>	80/82	1,000	4,241	<p>a. Farm land I surface is for a greater part undulated and hilly in several places which makes it easy for erosion and quickly reduces the soil productivity which in turn causes reduction in the output of foodcrops in the future.</p> <p>b. The relative short rainy season and high sun radiation have caused whitering of subsequent crops.</p>	<ul style="list-style-type: none">- To rearrange settlement for 528 KK.- Soil and water conservation and providing inputs such as seeds for foodcrops and soil covering vegetation.- To arrange the right time for planting and the right planting pattern and to plant cover crops (soil covering vegetation) to retain soil moisture.- Giving guidance and extension and conducting demonstration on farming pattern.	310,000,000	
33.	Sangkup	1982	500	1,987	<p>a. Greater part of land has a slope of more than 8% which makes it easy for erosion and causing a quick reduction in the soil fertility.</p> <p>b. The short rainy season and high sun radiation have caused harvest failures for the following planting season (2nd) as the results of drought.</p>	<ul style="list-style-type: none">- Soil and water conservation by building bench terraces, planting cover-vegetation, perennial crops, terrace-strengthening vegetation.- Providing inputs such as seeds for foodcrops and pesticides.- Arranging the right planting time and the right planting pattern.- Giving guidance and extension and conducting demonstration on farming pattern.	175,000,000	

No.	Province/ Location	Occupation		Problem	Suggested Action to be Taken	Estimate Costs	Remarks
		Year	KK Persons				
XI. C. Sulawesi							
34.	Mayoa I	80/82	533 2,208	a. A greater part of the house yard and farm land I contain quartz sand, high content of aluminium with a low fertility rating. b. Heavy rainfalls from high altitude clouds preventing penetration of sunrays badly needed for plant-growth. c. Plant growth delayed, dwarf sized and not yielding especially for paddy the grains are empty.	- Providing inputs above average such as seeds for foodcrops, fertilizer, NPK, TSP, urea, gandasil and lime and pesticides. - Arranging for the right planting time and implementation of planting pattern. - Developing mix-farming with livestock. - Giving guidance and extension and conducting demonstration on farming pattern. - Introducing and developing biogas energy.	400,000,000	
So							
35.	Mayoa IV/ Sahemba	82/83	241 1,087	a. Undulating land with a slope of more than 8%, which makes it easy for erosion causing a quick reduction in the soil fertility. b. Arable layer of land is thin with a low fertility. c. The greater part of farm land I consists of peat (more than 1.5 m) and swampy and under water during 6 months annually. d. Plant growth is defective, dwarf-sized and chlorosis especially in lands having thick peat and/or high slope.	- Soil conservation with bench terraces and planting of terrace-strengthening vegetation. - Providing non-standard inputs of seeds for foodcrops, tree crops, NPK, urea, TSP, gandasil and pesticides. - Arranging the right time for planting and the right planting pattern, the use of cover vegetation. - diversification of farming with livestock as mix farming. - Introducing and developing biogas energy. - Resettlement of 61 KK to another location. - Giving guidance and extension and conducting demonstration on correct farming pattern.	230,000,000	
SE, Dc							
XII. S. Sulawesi							
36.	Angkona II	81/82	996 3,989	a. Intrusion of seawater into house yards and farm land I. b. Attack by sea-animals causing plant destruction. c. Several plants are not able to grow normally, they even die young.	- Constructing water-gates and improving drainage canals. - Providing non-standard inputs such as seeds for foodcrops, fertilizer and pesticides. - Arranging the right planting time and the right planting pattern. - Resettlement of 22 KK to another location. - Giving guidance and extension and conducting demonstration on farming pattern.	480,000,000	
So, Dc							

No.	Province/ Location	Occupation		Problem	Suggested Action to be Taken	Estimate Costs	Remarks
		Year	KK Persons				
XIII.	Irian Jaya						
37.	Aimas II	81/82	2,000 7,999	Farms are often flooded especially during rainy season causing destruction of plants.	<ul style="list-style-type: none"> - Building drainage canals. - Providing non-standard inputs such as seeds for foodcrops, fertilizer and pesticides. - Giving guidance and extension and conducting demonstration on farming pattern. 	800 million	
TOTAL			41922 174424 56,916 229,831	Dr		20,400,000,000	

22 \$360/hk ≈ Rp 360000/hk

HHKwik/lk
April 28, 1983

May 4, 1983

Mr. D. A. P. Butcher
Team Leader
UNDP/OPE INS/79/001
RMI
Jl. Hasanuddin 58
Jakarta

Dear Mr. Butcher:

Financial Organisation & Monitoring, for
Transmigration

1. We acknowledge with thanks your letter ref. 5.8 dated April 30, 1983 enclosing a copy of the above report.
2. We would be most grateful if you could send us another copy for our Headquarters Office and we will get in touch with you again shall we have any comments.

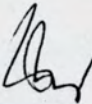
With kind regards,

Yours sincerely,

J. M. F. Greenwood
for M. J. Walden
Chief, Agriculture Division
Resident Staff in Indonesia

bcc: Mr. M. A. Hussain (doc. to be followed)

File: INS/79/001

 DNotley/lk

DRAFT
GDavis:esb
Aug. 23, 1983

TO:

FROM:

SUBJECT: INDONESIA - Management Issues in NES Projects

1. Since 1977 the World Bank has helped to finance seven Nucleus Estate and Smallholder (NES) projects for tree crops and one for sugar development. The purpose of these projects is to strengthen selected public sector estates and tap their managerial and technical resources to develop smallholder tree crops and industrial crops. When fully developed these projects will settle or resettle about 82,000 families and establish about 180,000 ha of rubber, coconut, oil palm and sugar.

2. As profit-making state-owned enterprises, the public sector estates or PTPs have several advantages over regular GOI line agencies. First, they are able to provide better compensation and benefits for their employees. For this reason they can be more selective in recruitment, more rigorous in training and provide greater incentives for superior achievement than most public institutions. Second, they are relatively decentralized and both authority and accountability are relatively clear. On the other hand, PTPs share a number of common management problems, with the line agencies, notably, high targets which distort planning and implementation, rapid program expansion and associated problems of staff competence and training, weak and overlapping institutional arrangements and cumbersome administrative procedures.

Management Problems

3. High Targets. Indonesians, in general, believe that utopian targets stimulate maximum effort even though the targets may not be attained. There is some truth to this. However, very high targets also distort the planning process and result in over-budgeting and inefficient use of funds; they emphasize quantity at the expense of quality; they reduce the utility of monitoring systems and prevent reasonable feedback, evaluation and adaptation; and, because everyone faces shortfalls, they make accountability difficult. In the last two years, high targets and supplementary planting programs such as PIR have seriously affected the implementation capacity of even the best estates.

4. Rapid Program Expansion. In spite of the fact that estates have an advantage in recruiting and retaining good staff, the recent expansion of estate planting programs has resulted in rapid promotions throughout the system, and few junior staff now have the opportunity to become technically competent in their fields before moving into administrative positions. The manpower vacuum which sucks relatively inexperienced people into positions of increasing authority produces staff at all levels who are barely up to the demands of their work, and this, in turn, places intense pressure on weak training institutions and increases the demand for consultant support. All too often, however, external training is costly, irrelevant and ineffective, because trainers and consultants are unaware of day to day staff activities and procedural details.

5. Weak Organizational Arrangements. Although individual estates may be internally well-organized, their linkages to the DGE and to other supporting agencies (SPBN, AARD, AAETE, and the Ministries of Trade and Cooperatives) are often weak and/or overlapping. For example, in the proposed NES cotton project, the relationship between the research institute (BALITTRI) and PTPs is very weak, both the PTPs and the provincial estate crop services (DPDs) offer village level extension, and the responsibility for plant protection and cost recovery belongs both to the DPDs and PTPs. The SBPN, an advisory unit to the Ministry of Agriculture responsible for the coordination of planning and investment in the estate sector, is a loosely organized body outside the line agency structure and it has no formal relationship to the PTPs or to the DGE. Similarly, the Joint Marketing Organization (JMO) is financed by the PTPs and supervised by the SBPN, but it has no authority over the PTPs and is not always supported by them. The problem of overlapping and poorly integrated agencies is even more serious within the DGE itself, and is compounded as the program expands and evolves without necessary adjustments in institutional structure.

6. Cumbersome Administrative Procedures. In an effort to promote financial accountability, virtually all agencies in Indonesia require excessive documentation, much of which is seldom used. Estates must observe elaborate procedures in preparing budget requests, dealing with funds on-lent to smallholders, preparing and evaluating tender documents, and organizing cost recovery. Since these procedures are common to many sectors, they are difficult for any one estate to simplify or change.

Conclusions

7. The problems identified in this brief, i.e. high targets, rapid program expansion and associated manpower limitations, weak institutional linkages and cumbersome administrative procedures, are largely external to the estates but common to both estates and line agencies involved in project implementation. This suggests that Bank intervention should focus on:

- a) encouraging national planners to set realistic targets;
- b) strengthening in-house training institutes; and
- c) helping agencies with:
 - (i) establishing adequate mechanisms for planning, monitoring and accountability;
 - (ii) developing appropriate institutional linkages to facilitate coordination while reducing duplication; and
 - (iii) simplifying internal procedures.

8. In this view the Bank should pay less attention to management in the abstract and more to structural constraints. While "declarations of commitment," ministers for management, national advisory committees, semi-autonomous national management institutes, management courses in universities, and overseas study tours may all be useful in the long run, in the short run the Bank's effort should be to address common institutional problems in key agencies.

OFFICE MEMORANDUM

DATE: August 24, 1983

TO: Altaf Hussain, Chief, AEPA4

FROM: Gloria Davis, AEPA4

EXTENSION 74215

SUBJECT Cattle Procurement in Transmigration Areas

1. Our division has received two proposals for cattle development in transmigration areas from the DGLS. The first is a proposal for a second stage of the IFAD project to distribute 60,000 head of cattle, the second is a proposal to distribute 275,000 head of cattle to meet the needs of transmigrants moved during Repelita IV. The cost of the first project is estimated at US\$47 million and the second, at about US\$135 million. The second proposal was submitted following discussions between the DGLS and the division's transmigration project pipeline team. Both projects involve domestic procurement and relocation of cattle and associated components for disease study, monitoring, training, construction and equipment.

2. Processing Issues. A mid-term review of the first stage of the IFAD project will be held in October 1983. Assuming that this review is positive the division may wish to identify and prepare a second cattle project and possibly seek co-financing. Assuming that only one project is needed, the division would be required to decide whether cattle procurement would be done under an IFAD-like project or within an integrated transmigration project. Such a project could be prepared and appraised in FY 85 if a slot were available.

3. Implementation Issues. In Baturaja, perhaps 700 of 4,200 cattle have already been sold by the poorest transmigrants and calf return has been limited, with male calves predominating. To reduce these problems the PMU has proposed that cattle be held by small farmer groups, that calf return be the responsibility of these groups and that fattening programs be an integral part of livestock development. These matters should be given serious consideration in the design of future projects.

4. Action to be Taken. A draft letter has been prepared notifying the DGLS that we have received the proposals and that we are awaiting the results of the mid-term review before further action is taken.

cc: Messrs. Baudelaire, Sengupta (AEPA4)
Ms. Subido (AEPA4)

GDavis:shp

Misleading Statement

350

INDONESIA - SOCIAL AND INSTITUTIONAL ISSUES IN
THE PROPOSED NES COTTON PROJECT

Summary of Recommendations

1. General. The problems of introducing cotton in Flores and Lombok are more likely to be related to agricultural and economic factors than to cultural ones. Social factors may be important in Sumba and Sumbawa. For this reason the proposed project should concentrate, in the first stage, on Lombok and Flores which have gins in place or already tendered. Only when cotton can be produced economically in these areas should the project be extended to Sumba and Sumbawa. During the first stage, studies should be undertaken which would facilitate the introduction of cotton to Sumba and Sumbawa.

2. Constraints to Smallholder Cotton Production. The main constraints to smallholder production are (a) the high cost of inputs in relation to initial yields, which prevents repayment of the credit package and leads to the "one-time farmer" phenomenon; (b) competition from food crops; and (c) associated shortages of land. Cultural factors may be a problem, particularly in Sumba.

(a) To overcome the one-time farmer problem:

- (i) the cost of the credit package should be kept low; and
- (ii) farmers should be given the opportunity to learn before they bear the full credit burden (see attached report).

(b) To reduce competition from food crops:

- (i) food crop production should be assisted under the project;
- (ii) unutilized lands should be brought into cotton production; and
- (iii) a study should be conducted on land development. Cattle should not be included as a component in the proposed project.

(c) To limit the possibility of land shortages:

- (i) arrangements should be made to circumvent the one time farmer problem (a above);
- (ii) underutilized lands should be brought into production by the smallholders or by the PTP (cii);
- (iii) ginning capacity should be kept reasonably low; and
- (iv) land availability in Sumba should be reevaluated under the proposed project.

- (d) To reduce possible social/cultural problems in Sumba and Sumbawa a detailed study of these matters should be undertaken in the first stage of the project.

3. Institutional Constraints. The very large number of agencies involved in the cotton intensification program produces confusion about responsibilities, duplication of effort, and a likely increase in the cost of production (even though the objective has been to reduce costs to the PTP itself). To simplify organizational arrangements, reduce costs and monitor actual cost of production of the following steps are recommended:

- (a) The PTP should (i) take over the functions of the cotton intensification PMUs, (ii) finance and operate the Cotton Development Units (CDUs) and (iii) maintain control over credit. (These recommendations run counter to current trends and are explained in paras 19-26 of the attached report.)
- (b) Increasing responsibility should be given to the farmer groups for land identification and measurement, input distribution, spraying and collection of cotton (para. 27).

INDONESIA - SOCIAL AND INSTITUTIONAL ISSUES
IN THE PROPOSED NES COTTON PROJECT

Introduction

1. Cotton has many attractions as a smallholder crop in Eastern Indonesia. Cotton is a known crop which is already cultivated in small amounts for home consumption. It is drought resistant, and while cotton yields were depressed this year due to the long dry season, in some areas it was the only crop to survive. In addition, under PTP management, cotton is an easy crop to market and a ready source of cash at harvest. In contrast, a number of small farmers in the field mentioned the difficulties of bulking and transporting maize and of finding buyers at harvest time (much of the crop falls below Bulog standards). These farmers welcomed the convenience of roadside collection and the certainty of a market for their products.

2. There are also a number of problems associated with cotton growing from the point of view of the smallholder and of the PTP. For the traditional small farmer the most important problem is the high cost of the input package in relation to expected yields. This leads to the so-called "one-time farmer" phenomenon in which the farmer drops out of the program either because he is unable to repay his credit or because his return after credit repayment does not justify the work involved. A second problem is that cotton competes with food crops for both land and labor, and subsistence cultivators generally ensure that food needs are met before cotton is planted. As a corollary of both these points, there may also be a shortage of land available for cotton.

3. The problems of the PTP are also economic in origin. At the present time there is a tendency to involve a very large number of agencies in the cotton development program, in part, to keep the costs to the PTP as low as possible. This has led to overlapping functions and uncertain administrative arrangements, but has had a questionable effect on costs. From the PTP's point of view, financial success is ensured only if average yields are high (to provide a reasonable return to cost/ha), this can be ensured only if all services are provided in a timely fashion, and these goals are not necessarily consistent with a delegation of responsibility.

The Constraints to Smallholder Production

The Economics of Smallholder Cotton Production.

4. General. At current prices (Rp 280/kg) for seed cotton and with a credit package of Rp 72,000, a farmer must produce at least 260 kg/ha of cotton to repay his credit package; he must produce about 600 kg/ha to obtain a minimum return to labor of about Rp 500/day and he must produce about 900 kg/ha to make Rp 1,000/day, which is about the cost of hired labor in NTT/NTB. While targetted cotton yields of 1.0-1.25 tons/ha are occasionally reported by farmers, and while the ADB project in South Sulawesi reports average yields of 850 kg/ha, the overall average yield for Indonesia has been about 600 kg/ha and among first time farmers in Flores it was about 320 kg/ha

last year (1981/82). With these low yields, about 30% of farmers were unable to cover their credit, and perhaps another third had yields so low that a further effort to produce cotton would appear unjustified. This has led to the so called "one-time farmer phenomenon" in which beginning farmers drop out of the program for what is commonly called a "lack of interest".

5. The "One-time" Farmer Problem. The problem of introducing cotton to traditional cultivators is straightforward. On one hand cotton is a crop which requires careful husbandry. As a deep rooted crop, it benefits from good soil preparation, and reasonable yields require good weeding, field maintenance, fertilization and pest control. On the other hand, the farmers of Flores, Sumba and Sumbawa have very traditional cultivation practices. In Flores and parts of Sumbawa cattle are only rarely used for plowing and in Sumba the use of the plow is unknown. Field preparation for food crops is done by hand hoeing and seeds are dibbled into roughly prepared ground. The use of fertilizers and pesticides on food crops is relatively recent and limited by poor yields. The farmers of NTT/NTB respond quickly to economic incentives, however; and the challenge to the project is how to ensure that farmers have the opportunity to learn to cultivate cotton and realize its benefits before they are required to bear the full credit burden. Several options have been proposed to facilitate this.

6. The simplest solution is to extend the repayment period. The PTPs are already permitting farmers to be in debt for two years, but they then require repayment for one year before credit is provided for a third. While reasonable, this may not be sufficient to prevent farmers from becoming discouraged over initial low yields and low returns to labor.

7. The second option is to provide the input package free to all farmers and to establish a low floor price for cotton which would cover the cost of inputs and ensure that farmers made money on every kg of cotton they produced. This would provide an incentive to farmers both to join the program and improve yields. Under this system, funds would be provided for a revolving credit system, and these funds would be lent by the GOI to Bank Export-Import Indonesia (BEII). Ideally BEII and the PTP would estimate total expected cotton yields and deduct the total cost of inputs to be provided. They would then determine the price per kg of cotton which could be offered to the farmers. Practically, a minimum price would have to be guaranteed and subsidized in the first few years of the project. For example, if the price were fixed at Rp 200/kg rather than Rp 280/kg, the current price, and inputs remained at Rp 72,000, an average yield of 775 kg/ha would be the breakeven point for BEII. At 600 kg/ha there would be a subsidy of Rp 23/kg to the farmers, and at 320 kg/ha there would be a subsidy of Rp 115/kg. If the cost of living components (Rp 25,000) were repaid in kind and only inputs were deducted from the purchase price (para. 26) the breakeven point would be 585 kg/ha. These figures indicate how critical it would be to rapidly attain yields of at least the national average and to keep the cost of the credit package low. Assuming that reasonable yields could be obtained in 2-3 years, this system would have several advantages. It would eliminate most record keeping, reduce the necessity of involving BRI, and potentially save on administrative expenses. It would also reduce the effects of a bad year when marginal farmers might otherwise fail. It has the disadvantage of causing

better farmers to subsidize poorer ones and it would not work if farmers had alternate processing channels. Problems might also result from the diversion of inputs intended for cotton. Some of these problems might be reduced by the more intensive use of group leaders (para. 27).

8. A third option, one suggested by the GOI, is that in the initial years of the project the PTP itself plant cotton on farmers fields using the farmers as laborers. When the farmers had learned appropriate techniques they would manage planting on their own. This option is likely to be even more costly than the second, as farmers who would work their own fields for return of Rp 350-500/day would expect Rp 750-1,000 to work for a PTP. In addition, the administrative costs of managing a large number of laborers on small plots might prove prohibitive. Nevertheless, the idea of demonstration plots managed by the PTPs should be considered to speed farmer acceptance and improve farmer cotton yields.

9. Whatever the solution, the cost of the credit package should be kept as low as possible. Calendar spraying alone currently costs Rp 22,330/ha, a charge which could be reduced by doing insect scouting and using farmer groups for spraying. It is also possible that savings could be realized on the cost of living component (Rp 25,000/ha) or that this could be recovered in cash. The PTPs should also avoid adding extra services which they charge to the farmers, such as land clearing, as each increment will increase the yield required by the smallholders to make a profit. Finally, replication between agencies should be minimized.

10. Competition with Food Crops. According to the authors of the cotton feasibility study, the major constraint to smallholder adoption of cotton is that cotton competes with food crops for land and labor. To reduce this problem the feasibility study recommends that:

- (a) the project address the entire farming system and make an effort to increase food crop yields in order to free land for cotton; and
- (b) cattle be provided to bring additional land into production.

The first of these items should be supported, but not the second.

11. The feasibility study argues strongly for dealing with the farming system as a whole. One way to do this would be to provide inputs for all crops in the same credit package and to deduct payment from the cotton yields while promoting integrated extension and research. This would have the advantage of improving the farmers overall living standard, reducing the possibility that inputs for cotton would be deflected to other crops and ensuring repayment and continued investment in food crop production. It would have the disadvantages of increasing the cost of the credit package and complicating the work of extension officers and PTPs. In spite of these problems, the advantages appear to outweigh the disadvantages and consideration should be given to a minimum support package for foodcrops under the project. Possible organizational arrangements are covered in para. 22.

12. Although the feasibility study strongly advocates the provision of cattle in order to increase land in production, this component is unlikely to have the desired effect. Campbell and Judd, consultants working on the NTT/NTB regional development project, have concluded that the main constraint to expanding the area in production is weeding rather than land preparation; a problem which cattle could not address. Furthermore, in Sumba, Flores, and parts of Sumbawa, there is no tradition of using cattle for plowing and this innovation would be likely to take years to be adopted. Finally, as the experience in Baturaja indicates, very poor farmers may not be able to retain control over assets such as cattle, but will sell them when the need arises. Under that circumstances it would be preferable to strengthen the existing DGLS distribution system in Lombok, where cattle are being used for plowing; and to initiate study of options for speeding land preparation including an analysis of draught and mechanized clearing, in Flores, Sumba and Sumbawa.

13. Land Shortages. Because farmers place high priority on food crops only a small portion of the family holding is likely to be put into cotton production. Throughout Indonesia cotton holdings vary from about 0.25 to 0.33 ha on the average. This means that only a part of that land suitable for cotton will be used for this purpose. Figures are not available for Lombok, as this area was not included in the feasibility study, but the problem of Flores is quite clear.

A. Families in Cotton Producing Areas in Flores

<u>Kabupaten</u>	<u>Population</u>	<u>Families</u>
Sikka	100,337	18,243
Ende	44,642	8,116
Ngada	20,856	3,792
<u>Total</u>		<u>30,000</u>

B. Potential Area Planted to Cotton in Flores under Various Assumptions (ha)

<u>Ha/family</u>	<u>Percentage of families participating</u>		
	<u>100%</u>	<u>80%</u>	<u>50%</u>
0.33 ha	10,000	8,000	5,000
0.25 ha	7,500	6,000	3,750

Obviously, to avoid land shortages the "one-time farmer" phenomenon should be prevented and ginning capacity should be kept reasonably low. In Flores, a ginnery with a capacity to process cotton from about 5,000 ha should be sufficient in the initial stage of development.

14. To provide adequate land, consideration should be given to opening new areas to cultivation. This might be done through resettlement, PTP assistance to farmers, or PTP development of marginal lands. Resettlement would involve a long preparation period and if contemplated, preparation funds should be provided under the proposed cotton project. Alternatively, the PTPs may wish to experiment with arrangements to open underutilized land and transport labor and water to it. Farmers could work on their own assigned

plots under PTP supervision. Labor would not be paid and farmers would retain the profits from their crops. This arrangement is likely to work best in areas where farmers are already getting good yields and are anxious to expand production. Marginal lands could also be used for seed production (5,000 ha of cotton would require 125 ha of seed) or planted to cotton by the PTP itself.

15. Consultants working on the NTT/NTB regional development program feel that the cotton feasibility study seriously understates the amount of land available for cotton in Sumba and this matter should be further investigated under the proposed project.

16. Social Cultural Variables. Social factors are likely to play an important role in the adoption of cotton in Sumba. The society of Sumba is very hierarchical, consisting of nobles, related families, commoners and ex-slaves. Most land and property (cattle) can be monopolized by the elites and systems of tribute are widespread. It is possible that elite dominance and systems of village taxation can facilitate the adoption of cotton, but in order to avoid mistakes the society should be better understood by the project entities. Since cotton would be introduced to Sumba and Sumbawa in a second stage, a study of social-cultural factors affecting project implementation in these areas should be carried out at the beginning of the project period.

Institutional Issues in Cotton Production

Background

17. The division of responsibility between agencies in the cotton project is intended as follows: BALITTRI, the cotton research center, would be responsible for developing appropriate cotton varieties, producing breeder seed and conducting adaptation trials in the field. To link research with extension and production, BALITTRI in association with PTP XXVI and XXVII would establish and staff two Cotton Development Units (CDU). These CDUs would carry out adaptive trials and train PTP and DGE staff. Production of foundation and extension seed would be done by the PTP on its own land. The PTP would also be responsible for the provision of agricultural supplies and technical support and it would arrange for purchasing and ginning the cotton. Extension is to be done by the PTP and DGE and credit would be provided by Bank Export-Import Indonesia.

18. Although this seems clear enough on paper, there is considerable duplication of effort and uncertainty within the system and a number of weak links in the chain. Problems associated with research and seed production are covered in the report of Mr. Haque and this section will deal with the general problem of overlapping agency responsibilities particularly as this affects extension, the development of the CDU, credit arrangements and the role of farmer groups.

Problems of Authority and Responsibility

19. Extension. In addition to being of central importance to the project, extension provides a good example of overlapping and occasionally

contradictory responsibilities within the cotton development program. The directive establishing this program provides that the PTPs will train and prepare sufficient extension staff to provide one foreman for each 100 ha, one assistant field supervisor for each 500 ha and one field supervisor for each 1,000 ha (see Figure 1). The field foremen (mandors) are drawn from among the farmer leaders. They are trained by the PTP and are paid about Rp 35,000 for eight months of work. They receive neither housing nor transport although they typically must supervise 300-400 farmers, each planting cotton on a separate plot. The same directive also charges the Directorate General of Estates with the responsibility for extension through its provincially based cotton development PMUs. In Flores there are two cotton development PMUs at present and five are planned. Each PMU has potentially six extension workers each responsible for 5-10 farmer groups or about 300 families (see Figure 2). In addition, a separate extension service provides agricultural extension to all villages and this agency regards itself as the sole extension agency for food crop production. Since the PMU is provincially based, to date it has assumed the major responsibility for identification of areas, farmer recruitment and registration. In some areas the PTP and PMU extension workers go to farmer groups together, elsewhere they divide the territory. Both are dependent for mobility on senior PTP staff with vehicles. A consultant report from the ADB project in South Sulawesi notes that "the general impression gained is that despite the roles of both PTP XXIII and the Dinas Perkebunan being defined on paper, in the field there is duplication of effort and the quality of the work in some cases is indifferent."

20. To resolve this problem one agency must be given the responsibility for recruitment, registration and extension and either the number of the farmers supervised should be reduced or mobility of the extension workers should be ensured.

21. Since a PTP must be involved in every cotton project and since they already pay honoraria to PMU staff and provide them with mobility and technical support, the simplest solution appears to be to give all the responsibility to the PTP and permit them to absorb the PMU staff which are redundant. This runs counter to the recent decision of the DPD in Flores to increase the number of PMUs from 2 to 5 to reduce the administrative burden on the PTP. The alternative would be to let the PMUs handle all field operations, as in the rubber and coconut smallholder projects. The PTPs are not yet prepared to do this.

22. The most difficult problem arises with respect to food crop production. Ideally, the same extension worker would give advice on cotton and food crops, particularly where they are to be intercropped. It would also be desirable to provide inputs for both in the same credit package to prevent cotton agro-inputs from being diverted to food crops and to improve cost recovery. However, this both raises the cost of the input package and increases costs to the PTP. To circumvent these problems it might be possible to intensify the food crop extension effort through regular channels in the cotton production areas.

23. Regardless of which agency is given the responsibility for cotton extension, PPLs should be provided with motorcycles, training should be

improved and extension staff should be carefully supervised. The use of audio-visual aids should be increased and extension literature should be provided to all farmers. Technical support for training is urgently required.

24. Cotton Development Units. The cotton development unit is the interface between research and extension and as such it also offers the opportunity for replication of effort and confusion of responsibility. To simplify the situation, the CDU should be planned and technically guided by the staff of BALITTRI but financed and operated by the PTP. The problem arises because of the very limited capacity of BALITTRI to execute its responsibilities which causes the PTP to take the lead role in research, further weakening BALITTRI. To circumvent this problem it will be necessary to offer strong technical support to BALITTRI Malang and to provide technical assistance to the proposed CDUs to design and support the field trials, to supervise the outreach stations and to train PTP staff and extension workers. If the major responsibility for field operations is shifted to PTP as recommended in para. 21, then the PTP should also finance the CDU and training programs as this would promote close links between the research, training and production efforts. These arrangements would also indicate the true cost of production, instead of spreading administrative costs over a large number of agencies.

25. Credit. As Bank Export-Import Indonesia has no village offices, farmers are currently registered by the PPLs but credit items are recorded by the PTP and repayment is deducted by the PTP from the purchase price of cotton. These arrangements are very time consuming and unsatisfactory to the PTP. To circumvent this problem either the cost of inputs should be reflected in the purchase price as suggested in para. 7 or credit should be managed by the branch office of BRI. In the later case BRI could handle credit for Bank Import-Export Indonesia for a management fee. Debt collection would still be managed by the PTP.

26. If a revolving credit system were established and the cost of inputs reflected in the purchase price of cotton a number of options are possible. First, the cost of living component could be repaid in cash or kind and handled by the farmer group leaders. A nominal price might even be assessed for inputs and recovered by the PTP. The main point here is to avoid the involvement of another agency (BRI) if possible.

27. Farmer groups. An excellent report on Farmer's Organization has been prepared by the British Cotton Growing Association for the ADB project in South Sulawesi. Briefly this report suggests that the main hope for simplifying the work of the PTP and reducing their costs is to increase the role and authority of the farmer groups (15-25 families), farmer group leaders, and field foremen. At present, group leaders and village authorities receive 2-1/2% of the purchase price of cotton so they have a strong incentive to expand the area under production and to increase the yield/ha. For this reason, the report suggests the farmer group leaders should identify land to be put into production, measure the land under the supervision of the field foreman, collect and distribute all inputs and maintain records at the group level. As the experience of the group increases, the group might manage the cost of living payments, borrowing directly from the village BRI. The group would then be responsible for repayment of the cost of living advance, thus

increasing social pressure on individuals to repay their share. Eventually these groups could also be responsible for selling their cotton collectively and performing associated administrative tasks such as measuring the moisture content of seed cotton, recording farmer's yields, deducting the cost of living advances (above), and redistributing payments. Group leaders would also provide the focus for extension advice.

28. Conclusion To circumvent institutional problems, organizational arrangements should be simplified and responsibility should gradually be transferred to farmer groups. In order to simplify organizational arrangements the PTP should be given all responsibilities for extension and for recruiting and training field foremen and farmer group leaders. The PTP should also provide motorcycles to the field foremen and suitable vehicles to the assistant supervisors and other senior staff. The role of the PMUs should be eliminated and their functions transferred to the PTP. Similarly credit should be handled by the PTP with the help of farmer group leaders and the CDUs should be financed and operated by the PTP under the direction of BALITTRI staff. At the same time costs should be reduced by gradually transferring as many functions as possible to the farmer groups. Farmer group leaders should be responsible for the identification and measurement of land, distributing inputs, gathering farmers for extension advice, collecting cotton and overseeing payment, functions formerly shared by PTP and PMU staff.

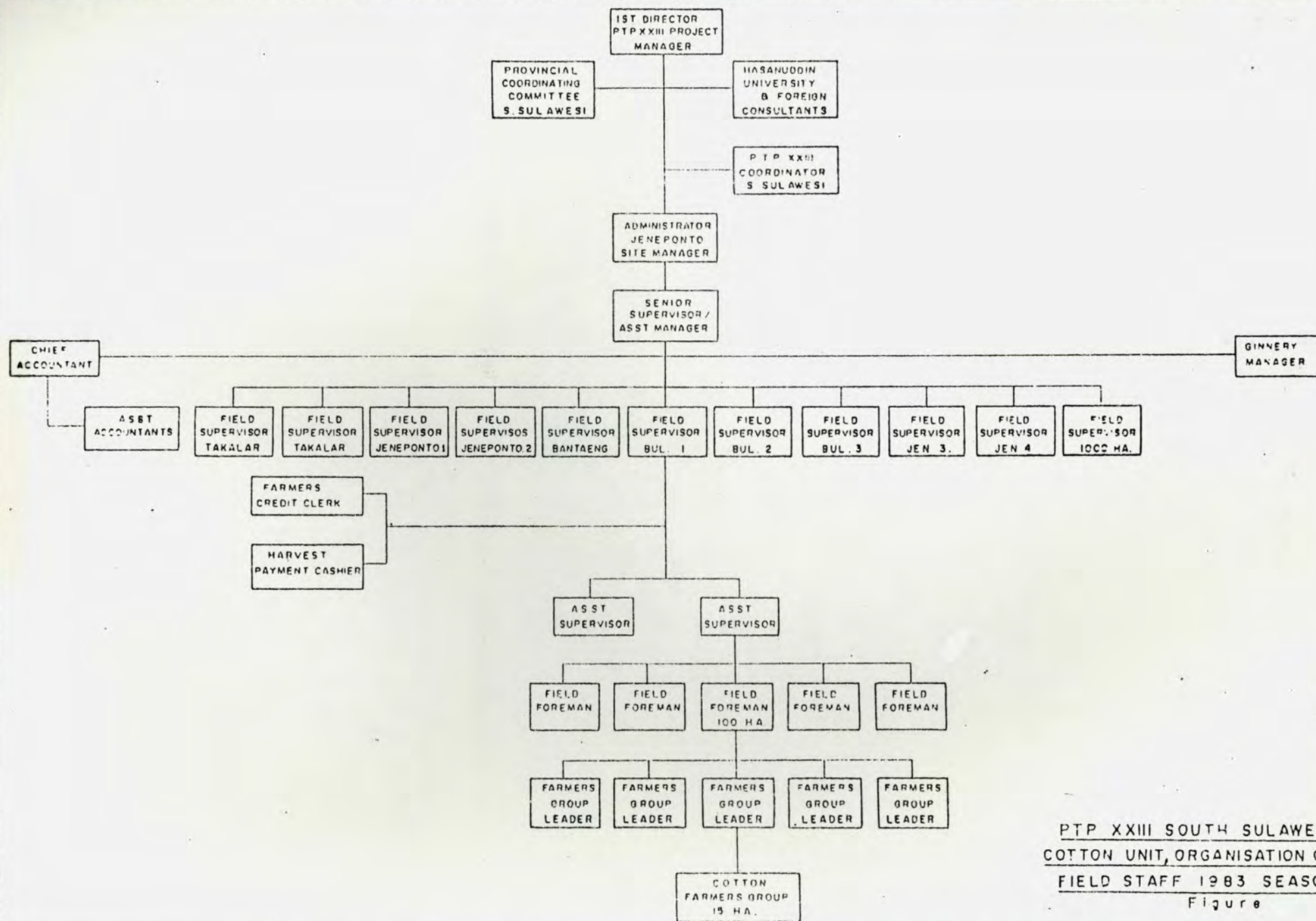
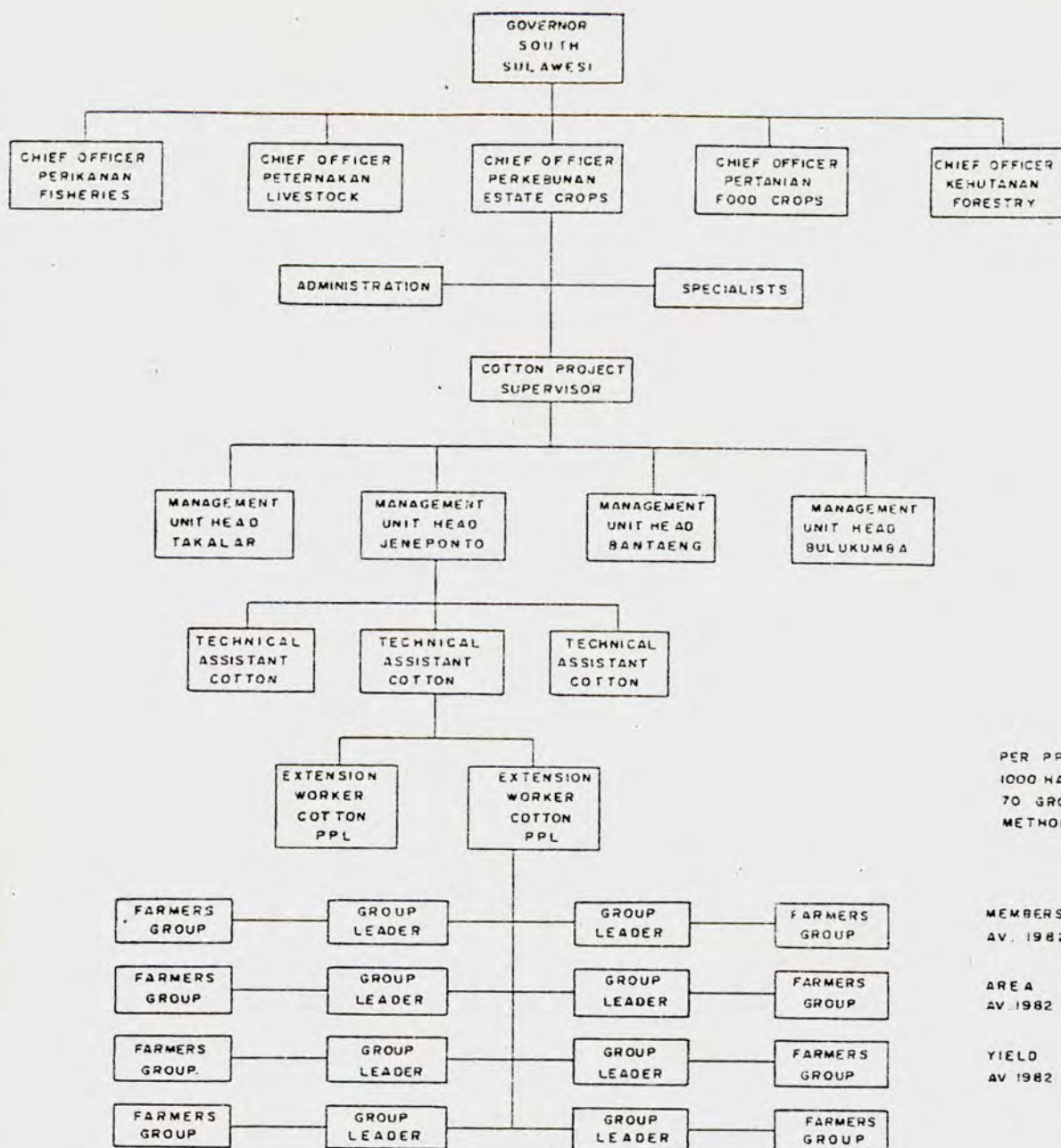


FIGURE 1

PTP XXIII SOUTH SULAWESI
COTTON UNIT, ORGANISATION OF
FIELD STAFF 1983 SEASON
Figure

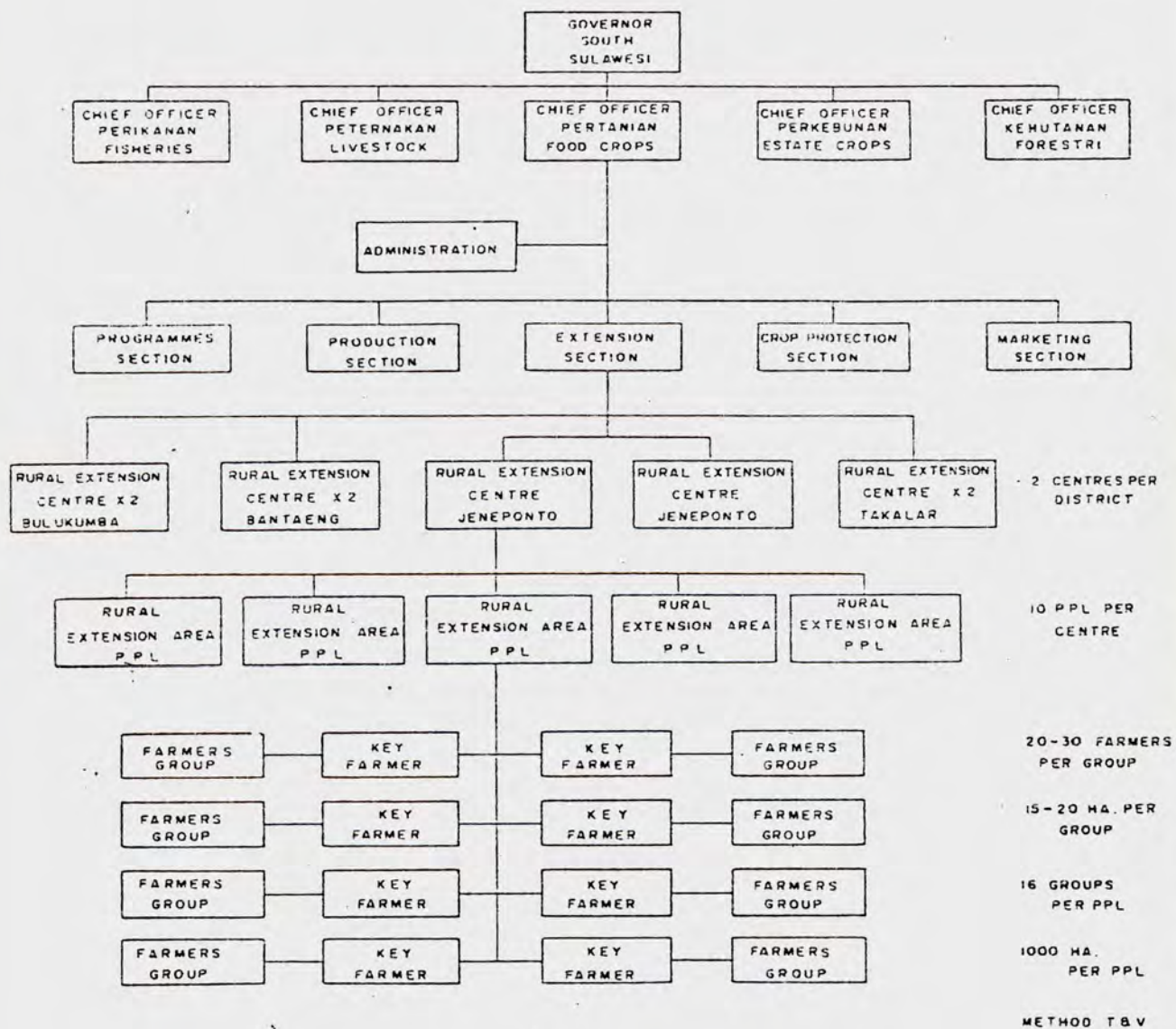
FIGURE 2



DINAS PERKEBUNAN
SOUTH SULAWESI
ORGANISATION OF COTTON EXTENSION

Figure

FIGURE 3



DINAS PERTANIAN
SOUTH SULAWESI
ORGANISATION OF EXTENSION
Figure 9

PTP XXIII Estimated Cost of Field Services per 1000 Ha./1982 Season

A.Capital (1)

1.Staff Housing:

50m² @ Rp 80,000;3 x 4,000,000Rp.
12,000,000

2.Office furniture and equipment

750,000

3.Motorcycle loans and purchase

3 x 850,000

2,250,000

Sub Total

Rp15.000,000B.Recurrent (1)

1.Salaries : Field Supervisor 1 x 160,000 x 12

1,920,000

Asst.Supervisor 3 x 83,000 x 12

1,992,000

Clerical 2 x 35,000 x 12

840,000

Field Foremen 10 x 30,000 x 8

2,400,000

2. Office Expenses - rental

225,000

stationery postage etc.

100,000

3. Transport (i)Motorcycles 3 x 21,000 per month

756,000

(ii)Cotton - Group to Ginney (2)

5,369,705

4. Allowances : Group Leader @ Rp4,000/Ha.(3)

4,000,000

Local Government @ Rp11,500 per group (3)

x 70 groups per 1,000 Ha. 805,000

Sub Total

Rp18,407,705

Notes : (1)These estimates do not include social costs related to pensions, leave and sickness benefits,nor do they include a contribution towards the headquarters capital or recurrent costs of the staff who support the field operation.

(2)Based on the 1982 average yield of 876.13 Kg/Ha.Actual transportation costs in PTP XXIII owned and hired vehicles was Rp32,683,330 to haul 5,939,022.5 Kg.Delivered Jeneponto = Rp 5.5 / Kg.

(3)For detail see Table 6.9

Source : These estimates are approximate and are based upon discussions with the Administrator and staff of PTP XXIII Jeneponto.

OFFICE MEMORANDUM

DATE: November 22, 1983

TO: Mr. M. Altaf Hussain (Chief, AEPA4)

FROM: Gerardo H. Soto (AEPA4)

EXTENSION: 76264

SUBJECT: INDONESIA - Appraisal of Soil and Land Resources for Transmigration
An UNDP/FAO Proposal

1. During my recent visit to Indonesia in relation to the proposed Upland Farming and Conservation Project, Mr. J. Caparas (AEPA4) requested that I review an UNDP/FAO proposal for the appraisal of soil and land resources related to transmigration/1 and, if possible, to discuss the document with its author Mr. E. J. Espinosa and with the staff of the soil research institute in Bogor (LPT). The purpose of these discussions would be to determine (a) if the results of such a study would be available during the course of the Transmigration Project III site selection and preparation studies and (b) if the estimated costs would warrant a stand-alone project or should be considered as a discreet component within some other project, assuming that the merits of the proposal justified Bank involvement in its financing.

2. A meeting with LPT was not possible because Mr. Mulyadi, the institute's Director, was absent and because of previous commitments related to the upland farming project. However, the proposal was discussed with its author and with Mr. M. S. Ross, Advisor to the Ministry of Transmigration and author of another proposal for reclassification of Indonesian forests/2 closely related to the UNDP/FAO document.

3. The UNDP/FAO proposal seeks to provide a methodology for selecting transmigration sites preventing the destruction of forests only to discover that the soils under them are not suitable for agriculture. The methodology is based on a series of broad identification, reconnaissance soil and land resource surveys, land suitability evaluation and screening of land claims on the proposed transmigration areas. This methodology is complementary to Mr. Ross' proposal for reclassifying Indonesian forest through alternative evaluation for forestry and agricultural purposes.

4. Both proposals are well prepared and offer a sensible alternative to the present method of site selection for transmigration although they constitute a long-term program and could only be applied by stages, i.e. province by province. The combination of both methodologies (they are

/1 E. J. Espinosa "Appraisal of Soil and Land Resources for the Selection of Transmigration Sites in Indonesia" (UNDP/FAO Project INS/78/012).

/2 M.S. Ross, "A Method for Selecting Agricultural Land from Production and Conversion Forests in Indonesia" (Direktorat Bina Program, Departemen Transmigrasi, 24 September 1983).

mutually supportive) requires the concurrence of the two agencies more seriously involved, the Soils Research Institute (LPT) and the Ministry of Forestry (MF). Mr. Espinosa expressed open concern for the lack of support by LPT while Mr. Ross was much more confident that MF would consider a reclassification of the forests using this methodology. LPT's concern with applying a methodology which by-passes the traditional soil surveys to arrive at short-term conclusions on the suitability of lands for transmigration is easily understandable in a research institution. There was not enough time to verify Mr. Ross' confidence in MF's support, but there was little evidence to suggest that the ministry is now more open to reclassify the forests than it was during the Trans III preparation.

5. There is no doubt that both proposals have merit and would assist the Ministry of Transmigration and the Ministry of Forestry to resolve some of their differences over land use. However, to apply both methodologies over all the potential transmigration areas in Indonesia would be time-consuming, costly and subject to institutional difficulties in coordinating the work of the Ministries of Forestry and Transmigration and the necessary support from the LPT.

6. One opportunity to implement the proposed methodologies which would possibly encounter less resistance from the agencies involved is offered by the recent fires which in 1982/83 destroyed an estimated 30% of the forest resources in East Kalimantan. At present a survey is underway to determine the extent of the fire damage but it is estimated that devastation is of the order of hundreds of thousands of hectares. Should this estimate be confirmed, the area would provide a large continuous area where the problems of timber disposal do not exist and where a new forest classification and land resource evaluation would lay the basis for future land use and orient forestry and transmigration activities in the province during the coming years.

7. A program for the study of the burnt forest area of East Kalimantan including mapping, reclassification of land use and development planning is presented in a document related to the effect of the 1983 forest fires/1 also by Mr. Ross. This paper could serve as a basis for discussion, once the results of the ongoing survey are available, for a potential application of the UNDP/FAO and the DGT evaluation methodologies under a Bank-assisted project.

/1 M.S. Ross, "A Statement of Concern - The Forest Fires in East Kalimantan 1983" (Jakarta, October 1983).

cc. Messrs. J. Caparas, J.P. Baudelaire (AEPA4)
Ms. G. Davis (AEPA4)

GSoto/yw

To: J. P. Baudelaire

From: Gloria Darro

Subject: Transmigration I PCR - Comments

1. I think this is a very good report.

It is written very clearly, ~~and~~ pulls together a large amount of material in a very comprehensible way, and, in general, I agree with its conclusions, ~~of the report~~.

2. I have only one major reservation and this is on the success of rainfed ^{food crop} agriculture.

The PCR gives a very optimistic picture suggesting that farmers adopting the CRRA model can produce marketable surpluses on 2.0 ha of land.

While this may be true it is my impression that the actual picture is considerably more complex and that more details might be needed in the PCR.

~~Among the points which should be included to~~
complete ^{For example:}

give a more ~~accurate~~ picture, ~~are the following~~

a. ^{The report should probably include BIMAS figures which show} very few farmers in Baturaja or Wayabunga have been able to repay their credit for BIMAS ^a factor on which the success of sustained agriculture will depend;

b. Yields in Baturaja ^{instead} depend on the fact that the PMU has ^{provided} the full input package to all farmers ^{in Baturaja for up to six years,} ~~to date~~, whether or not they have repaid their credit; ~~been able to repay;~~

c. ^{According to my own survey,} The number of farmers planting any crops after the main planting season (the CRRA model) was only 6% in Wayabunga and 40% in Baturaja, and in more than 50% of the cases farmers planted less than 0.25 ha of land; ^{furthermore,} according to the SCET surveys the area planted after the main season is declining rather than growing;

this leads to the so-called "one turn farmer" phenomenon in which beginning cotton farmers drop out of the program for what is commonly called "a lack of interest."

A second problem is that cotton competes for land and labor with subsistence crops. The practical result of this is that most farmers allocate only a small portion of their land and labor to cotton. The average holding size in all areas is only about 0.25 to 0.33 ha. This, of course, increases the number of farmers which must be reached by the PTP which increase both managerial problems and ~~the~~ ^{and} the cost of production.

~~Cotton in NTT/NTB~~ To compound the problem, cotton is a crop which requires careful husbandry. ~~While the farmers of Indonesia have very~~ ^{eastern} ~~traditional cultivation practices.~~ As a deep rooted crop, cotton benefits from good soil preparation, and reasonable yields require ^{good} careful weeding and ~~good~~ field maintenance, fertilization and pest control.

← To date cotton has been planted in areas where farmers are accustomed to relatively intensive crop cultivation. The major cotton production areas include East Java, Lombok (Balinese and Sasak peoples) and South Sulawesi (Buginese and Makassar). Generally these people use cattle or small tractors (Sulawesi) for field preparation and they are accustomed to ^{careful weeding, and the use of} ~~using credit~~, ~~apply~~ fertilizers and pesticides in order.

d. Bqam, in my survey, farmers were shown to average only about 1.3 ha in production rather than 2.0 ha as you suggest. About 20% of families did cultivate 2.0 ha but only with the assistance of adult children or spontaneous immigrants; 25% of families cultivated less than 1.0 ha of land;

e. finally, only 8% of Way Abung farmers and 25% of Baturaja farmers report selling any surplus rice.

← In other words while it may be possible to achieve marketable surpluses most farmers do not do so, and their main hope for income which exceed their subsistence needs lies primarily with tree crops. To emphasize this point is to miss a major lesson of Baturaja.

3. As a further example of the marginal nature of reforested agriculture it may be important to note that in the last dry season a large number of settlers have been forced to sell their cattle. The newspaper is now reporting that nearly 700 head have been taken from the project. As cattle are acquired from the farmers for Rp 150,000-230,000 compared to their purchase price of Rp 700,000 to the Government, important financial and policy questions are involved.

4. Finally it may be worth noting that CRIA yields are not average yields across all fields as CRIA cuts only undamaged stands on farmers' fields, thus representing ~~maximum~~ potential rather than average yields.

5. Again the report is a good one but I feel that the implications of our experience with painted agriculture should be more fully discussed.

cc. Aliof Hussain