INCEPTION MEETING - ACIAR FIRE PROJECT

The list of participants and program of the inception meeting are attached below. Copies of the minutes of the meeting will be available in English and Bahasa on the project website (http://fireindon.ntu.edu.au).

Minutes of the meeting

Monday 17 March

Welcome from Siliwoloe Djoeroemana

Opening address: Ir. Emanuel Babu Eha
Pak Emanuel described the history on Sumba of decreasing forest cover (currently 9%) and forest resources, and increased erosion. These trends have followed a decrease in the importance of the traditional animist culture in which felling of trees was restricted. Burning is widespread and people are generally not making firebreaks. There is a need for people to meet and work together, and act holistically. The government of East Sumba Regency supports the project. They feel they own the project and believe this meeting is the start of a long-term project. Acknowledgment was made of the contributions of funding from the Australian government and expertise from the Australian partners.

Background, aims and expected outcomes of the project: Prof. Greg Hill (Australian Project Leader, NTU, Darwin)
The project grew from a meeting in Kupang in December 1995 in which fire was identified as a key topic in discussions about semi-arid agriculture in eastern Indonesia. Funding was sought from ACIAR. First a small project was funded to scope the project, resulting in a workshop in Darwin in April 1999. Final approval for the current 3-year project was obtained in 2002.

The main partners of the project are:
- Northern Territory University (NTU), Darwin
- Cooperative Research Centre for Tropical Savannas Management, (CRC Trop. Sav. Management), Darwin
- Wira Wacana Christian School of Economics, Sumba
- Centre for International Forestry Research (CIFOR), Bogor
- Provincial Development Planning Board for East Nusa Tenggara (BAPPEDA NTT)

Main Personnel:
- Prof. Greg Hill (NTU, CRC)
- Dr. Jeremy Russell-Smith (Bushfires Council NT, CRC)
- Dr. Siliwoloe Djoeroemana (Wira Wacana Univ)
- Dr. Luca Tacconi (CIFOR)
- Ir. Esthon L Foenay (BAPPEDA)

The primary aims of the project are to:
1. determine current and past patterns of fire in a range of strategically located sites;
2. review national, state/regional policy frameworks regarding underlying fire management issues and past/current impacts of these policies;
3. determine positive and negative impacts of a range of fire management strategies, particularly for forestry;
4. determine appropriate fire management strategies (that facilitate improved livelihood options) for different land-use objectives through participatory planning methods; and
5. enhance land and forest management capacity of stakeholders through technology transfer, training and education.
The expected outputs are listed under these objectives:

**Objective 1:** To determine current and past patterns of fire in a range of strategically located sites  
**Outputs:**  
- Contemporary fire mapping (hotspots, scars) from satellite imagery for selected sites in southern Sumatra, East Kalimantan, East Sumba, Flores, and northern Australia.  
- Contemporary land-use maps, (temporal and spatial).  
- Spatial and temporal maps of fire patterns in different land-use types.

**Objective 2:** To review national, state/regional policy frameworks regarding underlying fire management issues and past/current impacts of these policies.  
**Outputs:**  
Review of legislative & regulatory frameworks, implementation and practice-based impacts of fire policy on land-use management in northern Australia and Indonesia.

**Objective 3:** To determine positive and negative impacts of a range of fire management strategies, particularly for forestry  
**Outputs:**  
- Methodology for, and description of, biophysical/socio-economic condition of the sites.  
- Synopsis of existing & past fire management practices in different locations.  
- Assessment of alternative practices for different land-use objectives. This includes economic well-being, maintenance of natural resources and poverty reduction.

**Objective 4:** To determine appropriate fire management strategies (that facilitate improved livelihood options) for different land-use objectives through participatory planning methods.  
**Outputs:**  
- A review of appropriate fire management strategies for different land-use objectives, and recommendations for communities, private owners and governments, including socio/cultural, economic and biophysical factors.  
- Position paper reporting on review described above.

**Objective 5:** To enhance land and forest management capacity of stakeholders through technology transfer, training and education.  
**Outputs:**  
- On site field training for government extension officers and land managers  
- Incorporation of project work into appropriate research and course work at NTU and Kristen Wira Wacana, and practical application in CIFOR  
- Graduate training in applied fire ecology and/or GIS/remote sensing as required.  
- Mid and end of project field day/seminar for policy makers

**Use of satellite imagery:** Rohan Fisher (Darwin GIS Officer)  
Rohan Fisher presented case studies from northern Australia in which remotely sensed imagery has been used in fire mapping (including extent, season and frequency of fires). He also presented current imagery for Waingapu and stressed the need for ground truthing when interpreting imagery.

**Process/structure for the meeting:** Siliwoloe Djoeroemana  
A process/structure was outlined, with the following outcomes:  
- common understanding of the project within the project members;  
- clarification of responsibilities of project team members;  
- plan of action.
Description of field sites on Sumba: Petrus Pandanga

Physical, economic and social characteristics were described for the field sites at Kiri Tana and Lukuwingir, south of Waingapu, with particular attention given to current and past fire patterns.

Seasonal calendar:
- high rainfall occurs Nov-Feb (maximum in Jan/Feb)
- highest wind velocity is in Feb and July

Soil types:
- upland soil - shallow topsoil, white, low fertility
- river flats and valleys - deeper soil, black, higher fertility

Fire patterns:
- uplands are burnt frequently, valleys burn occasionally and the river sides burn rarely
- fires are most intense in Sept-Nov
- fire is used in slash and burn agriculture, to clear land, in harvesting of forest products, for locust control, and during hunting

Fire management:
- no formal regulation
- community development through government and non-government organisations
- no anticipation of fires

Socio-cultural impacts:
- density of settlement is high on highly productive land
- house designs are most complex where building materials are plentiful
- trend towards using zinc/iron sheeting for roofs instead of coarse grass
- relationships have moved from strong clan associations to more diverse

Topics for future action research:

<table>
<thead>
<tr>
<th>(A) Biophysical</th>
<th>(B) Fire Pattern</th>
<th>(C) Socio-cultural</th>
<th>(D) Economical</th>
</tr>
</thead>
<tbody>
<tr>
<td>soil depth</td>
<td>impacts of fire in different months</td>
<td>how to decrease dependency of community on forest products</td>
<td>direct economic losses to farmers due to fires</td>
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<tr>
<td>erosion</td>
<td>how to anticipate fire in July -October</td>
<td>how to increase farmer participation in fire management</td>
<td>direct economic losses to villages due to fires</td>
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<tr>
<td>land fertility</td>
<td>how to halt fires that burn in from outside</td>
<td>what media are effective for increasing community awareness</td>
<td>comparison of costs of burning and other farming activities</td>
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<tr>
<td>soil/rock</td>
<td>how to protect farming land and forest</td>
<td>what institutions will participate in fire management</td>
<td>estimate farming labour needed for fire practices</td>
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<td>humidity</td>
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<td>comparisons of productivity with and without fire</td>
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<tr>
<td>soil structure</td>
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<td>how to increase productivity</td>
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<td>types of soil and nutrients</td>
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<td>ways to manage fire</td>
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<td>density of vegetation</td>
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<td>how to decrease farmers’ dependency on forests</td>
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<td>kinds of vegetation</td>
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<td>how to manage cost of development policy and implementation</td>
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<td>dominants in vegetation</td>
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Address from BAPPEDA NTT:
Apologies from Esthon Foenay (BAPPEDA NTT) and pledge of support from BAPPEDA delivered by Jan Rain Tukan (BAPPEDA NTT). The address is summarised below:
The project has been expected for a long time and the government of NTT is keen to see the project implemented. Thanks were offered to the Australian government for support to the project.
The use of fire is a very old, traditional technology. Various uses of fire can cause ecological, economic and social imbalances. The regional development plans for NTT have a large gap in the area of fire use. This project will fill this gap.

Discussion about Sumba field sites
Q. Jeremy - How representative are the 2 field sites of East Sumba? How do the members of the project team on Sumba feel about the challenge?
A. Petrus - For East Sumba they are highly representative. There are more similarities than differences between East and West Sumba. The major challenges are perceived to be the technical ones plus the infrastructural support. There needs to be cooperation within and between local government agencies.

Comment
Johanis - East Sumba rainfall about 700 mmpa, West Sumba rainfall up to 2500 mmpa. To be representative, the project needs to look at many ethnic groups.
Petrus - acknowledges differences but recognises similarities, and need to include many ethnic groups.

Comment Jan Tukan - Approach investigation of burning activities with recognition that current burning activities are probably planned and well thought out. Observe well before making suggestions for change.

Comment Haryono - Impression is that people of West Timor use fir in a more methodical way. For example, Daniel Kameo recalls, when he was about 10 years old, creating fire breaks to exacting requirements - sweeping wide strips - 5m on flat and 10m on sloping ground.

Comment Petrus - Traditional laws (Sumpah adat) have been a strong control of activities, including burning. In Sumba breaking laws resulted in curse from Marapu (god), in Timor, breaking the law lead to alienation of family by the village.
Daniel and a student are publishing a paper about the rituals associated with land management: 14 rituals in a year from clearing to bringing harvest home.
Q. Daniel - why is West Timor no longer included in the project?
A. West Timor will be included in the project when politics allow. At present there is an Emergency Level 4 warning associated with West Timor.
Q. Haryono - Haryono has a student working in South Kalimantan where neighbours are cooperating in burning activities and control of fire.

Comment Jeremy - traditional Australian Aboriginal law enforces planning and cooperation in fire management. This practice is in disarray at present.

Description of field sites on Flores: Josef Maan
Two field sites were described, including their location, biophysical characteristics, and the impacts of fire on the biophysical, economic and social aspects of these sites.

The sites are near the villages of Desa Raja and Desa Watukapu. Both are in the Aesesa catchment. The sites are burnt every year and the vegetation is savanna with secondary forest of fire resistant tree species along the rivers.

These sites were chosen because they are both in the Aesesa catchment, access is reasonable and they are subject to extensive and frequent fires.

Desa Raja is drier than Desa Watukapu. Both sites have shallow soil and high rates of erosion. The topography is hilly with medium to steep slopes. The main land use is grazing, with some dryland cultivation and rice paddies.
Fires are most common in June-August and all the savanna burns every year. The reasons for burning include amusement, hunting, to promote green grass, clearing for agriculture, jealousy among villagers, political purposes. Measures to remedy widespread burning have included:
• referring to sumpah adat (started in 1993), not effective because there was no punishment
• prohibitive signs erected by Dept. Forestry, not heeded
• creating fire breaks by clearing around fields
• planting gamal, a fire resistant species, as a live fence
• using permanent cultivation rather than swidden

The impacts of extensive, frequent burning have been:
• area of arable land has decreased so that farming is only possible along river banks
• soil erosion rates are high and increasing, and soil on slopes is very shallow
• biodiversity decreases every year
• groundwater is lower, small tributaries are now do not flow through the dry season
• in summary, some rivers are dry and soil is becoming more shallow

Economic impacts include:
• price of construction timber has increased
• fuel wood is scarce
• greening projects funded by international agencies are now denuded of vegetation
• land productivity is decreasing

Social/cultural changes include:
• villages have houses of a modern style instead of the traditional "stage" house design because of scarcity of timber
• gasoline is used for cooking instead of wood
• there are frequent accusations and conflicts about responsibility for fires

Comment Jan Tukan - It would be useful for the project to consider traditional law.
Comment Johanis - In East Flores fire is managed well using fire breaks. We could learn from the local knowledge there. We should take note of the influence of religion: in Timor, Catholic religion tended to accommodate local/traditional wisdoms, whereas, in Sumba, Protestant religion dismissed old ways and symbols of animism.
Comment Daniel - described a successful UNDP project in Monggarai where Eucalyptus alba was planted for timber supply and erosion control. In this project land ownership was sorted out before planting and there has been a high degree of acceptance and ownership of the project by the local people.
Comment Jeremy - There is some concern that the sites chosen involve communities that recognise their problems and are willing to find solutions through working with other villagers and government departments.
Comment Josef - Some forest areas in Flores are under ownership dispute. Most forest is under the control of the Forestry Department. Near Desa Raja, there is some dispute between clans. Near Watukapu, land ownership is clear.
Conflict about land ownership is rarely between individuals: rather it is between clans or between clans and the government. Although there is potential for conflict, it is uncommon.
Comment Daniel - When the economic benefits of a project are clear, the acceptance is usually strong. For example, in the project that promoted Eucalyptus alba seed was initially given away. After success had been demonstrated farmers were willing to buy seed.
Q. Jeremy - Why did the national project fail? Will this project be seen as another intervention?
A. Greening project was too large (>50 ha) so there was no individual responsibility. Success would follow where the planting was on the farmers’ own field. Projects on a massive scale tend to fail.
Recapitulation - Jeremy

Opening addresses described the sustainability of land production in Sumba as desperate because of increasing population and the extent of clearing. In contrast, the average population densities are 30 people/km² in Sumba, 20/km² in East Sumba, and 1 person/km² in the Northern Territory of Australia.

Greg Hill described the five main objectives of the project and looked forward to a long-term project. The project will include the following topics: remote sensing, with ground truthing, to map fires; policy development, noting parallels between northern Australia and NTT in terms of history of current policies and issues of land ownership; establishment of demonstration sites, which is the main topic for discussion at this meeting. Siliwoloe described the process of inputs and outcomes - today focused on inputs. Petrus provided a detailed description of the site near Kiri Tana and raised hypotheses to be tested over the next three years. Pak Tukan delivered a message of endorsement for the project from Pak Esthon Foenay. The support of Esthon and Prof. Saragih have been very important in the development and execution of the project. Josef described two sites in the Aesesa catchment and raised questions and challenges about how to integrate the involvement of government departments and the communities.

Thank you to organisers, Siliwoloe and Victor.

Tuesday 18 March

Field trip to Kiri Tana

During the morning there was a field visit to Kiri Tana. The meeting participants traveled along the main valley south of Waingapu to the village of Kiri Tana. At the village participants broke into 3 groups. The group addressing biophysical aspects followed a transect from the village near the river through to the savanna on higher ground. The groups addressing social and economic aspects held discussions with villagers. Rohan and members of the Indonesian team used GPS to locate positions on the satellite imagery.

The meeting resumed in Waingapu in the afternoon with discussions within the three groups. Members from the three groups presented summaries of these discussions.

Social-cultural Group:
The traditional belief system used to control the management of the forests. This is weaker than in the past but still exists. The social system is based on horticulture: income is mainly from rice and corn in the wet season and from horticulture (e.g. mangoes) in the dry season. In comparison, in Ngada (Flores), grasslands dominate and grazing is only viable for a few months of the year so the carrying capacity is low. There is some development of fisheries along the river.

Economics Group:
Fire is only fought if it threatens homes and fields, otherwise the villagers just watch it burn. There is a need to raise community awareness before attempting to implement changes to fire management. There is no institution that is responsible for fire management. Villagers need to want change, which will require changes in attitudes.

Comment - Jeremy - It is possible to control fire by strategic use of burning early in the season with few people and few resources. Therefore there is a need to create awareness that burning can be reduced without greater fire fighting effort, rather we would aim to change the fire regime so that fire fighting is reduced.

Comment - Haryono - The fact that although Sumbanese can grow fruit (mangoes and bananas), they prefer meat is a social consideration.
Comment - Greg - Research can be targeted to the aims of the people. We need to seek out the old ways. With any recommendations for change there needs to be rewards that the people can appreciate and value, rewards that can be demonstrated and "sold" to the people, e.g. increased livestock production. For example, for Aboriginal people of northern Australia, certain burning practices may entail rewards in terms of ease of movement through the country and better hunting.

Biophysical Group:
Upland areas are savanna grasslands on shallow soils, with remnant forest restricted to the valleys. Weeds, including Chromolaena and Hyptis, grow along roadsides and in areas of disturbance. Crops are grown near settlements in the valleys.

Presentation by CIFOR
Unna Chokkalingum (CIFOR) presented information about her work on the causes and impacts of fires in the wetlands in southern Sumatra. This work is funded by CIFOR, EU, World Agroforestry Centre and ACIAR.

The sites are in southern Sumatra and eastern Kalimantan. Wetlands were chosen because of their importance as carbon sinks, in terms of hydrology, fisheries and biodiversity. Fires in wetlands are often peat fires that are a significant source of smoke emissions. In the 1997/8 fires, wetland fires covered 15% of the area burnt, produced 60% of the acrid haze and accounted for 70% of the C emissions in the region. Large-scale developments and local community-based management practices could alter fire regimes and transform the landscape. After burning, wetlands are susceptible to repeated burning. The project assessed the negative impacts of fire regimes, and examined alternate management and policy options.

Tony Djogo (CIFOR) summarised his work on the effects of decentralisation, in terms of policy analysis and research.

The major challenges and aims of this work have been:
- How to develop the interface between research and policy development
- How to develop incentives for adoption of policy
- To address tenure issues for forest resources

The main activities of the project are to:
- Facilitate the transfer of information between NGO's and government officers and between National government departments and local government offices. Technical information can be confusing and misunderstood. For example, Carbon trading can be mistaken for selling forest resources.
- Publish policy briefs
- Facilitate workshops at various levels
- Support analysis for district level policy development
- Provide training, for example, in producing village regulations and budget at village level

Lessons learnt from the project:
- Most work in western Indonesia has related to forest areas. In the present project, links between agencies will be very important.
- There is a need to identify mechanisms for incorporating research into local policy. Interactions between research and policy development present challenges.
- Consideration needs to be given to how to develop rules and regulations at the district and village level.
- There should be awareness of the traditional system of management, how strong that system currently is, and how recommended changes can be linked to that system.
- Roles need to be defined for involvement at the district and village level.
- Adoption requires the demonstration of incentives, and resolution of tenure issues for forest resources.
CIFOR’s role in the current project was discussed. The CIFOR team will provide the following:

• Information from studies on the causes and impacts of fire in western Indonesia for comparison with similar studies to be carried out in eastern Indonesia
• Information about policies relating to the regulation and use of fire in Indonesia, to be part of a comparative study of fire policy across the study region of Indonesia and northern Australia.
• Participation in discussions to determine the adaptability of methods used in studies in western Indonesia to the studies in eastern Indonesia, including methodologies for data collection and data analysis.
• Appropriate training opportunities in GIS technology in Bogor for members of the project team based in eastern Indonesia.
• Assistance with accessing relevant topographic maps, satellite imagery and aerial photography.
• Methodological papers and reports, and participation in review workshops for the project as outlined in the project proposal.

Comment - Jeremy - We need to look closely at project timetable and proposed dates for milestones. We need more information about the PASIR model so that methodologies adopted for the survey work in eastern Indonesia is compatible with that in western Indonesia.
Comment - Unna - Luca Tacconi will provide information about the methodology.
Comment - Tony - There may be difficulty in elucidating incentives for adoption on common land.
Comment - Unna - Training at CIFOR can be developed in collaboration with Iwan. Note that Iwan's continued funding is not confirmed at present.
Comment - Rohan - Note that the remote sensing methodologies that are most appropriate in eastern Indonesia are likely to be similar to those used in northern Australia rather than those used in western Indonesia. In eastern Indonesia and northern Australia fires are frequent (annual) and associated changes in land use are small and slow, whereas in western Indonesia, there have been relatively large changes in land use and cover in the short term. We should establish consistency in the software used for simplicity in training GIS officers.

Wednesday 19 March
Greg Hill outlined the proposed project outputs with a review of the timetable of activities and project milestones.

The following outline was devised for the Participatory Rural Appraisal (PRA) survey.

Outline for Participatory Rural Appraisal Survey

1. Socio-economic Aspects
Discussion of CIFOR PRA (Participatory Rural Appraisal) procedure from the Makaram site.
Information gathering needs to be considered in context of three elements: State, Society, Market
• timeline—as far back in people’s experience as possible, for assessment of change
• Mata pencaharian (livelihood)
• jenis (types)
• jumlah petani per category (number farmers per category) untuk seluruh masyarakat desa (for whole village society/community)
• perubahannya berdasarkan tahun (changes according to year)
• jenis pekerjaan yang dominan untuk setiap jenis mata pencaharian (types of dominant activities per livelihood category)
• kegiatan dominan berdasarkan bulan (dominant activities per month, per livelihood category)
• Mata pencaharian and pemanfaatan sumber daya alam
• Jenis hasil hutan and padang rumput yang diambil (rotan, ubi-ubian, madu, kayu, burung etc.)
• jumlah setiap jenis yang diambil (kg, kubik, Rp)
• peruntukkan (a) konsumi sendiri (b) dijual
2. Biophysical aspects
To be dealt with in three sections—tanah, hutan/padang, air. In each section, questions need to be framed in terms of Status (perbahan), Problems (masala), Solutions (potensi dan solusi)

- Tanah
  - kepemilikan (ownership) (komunal/individual/negara (state))
  - topografi; tingkat (degree, level) kemiringan (slope)
  - pemanfaatan lahan (landuse) (hutan, padang, tegalan, sawah)
  - keadaan/kondisi fisik tanah (solum, lapisanolah, struktur, porositas,
    - (kelembaban tanah)
  - produktivitas lahan, tingkat kesuburan tanah
  - pengelolaan lahan (land management) (tradisional, luar)
  - tingkat erosi tanah, tingkat sedimentasi
  - pengolongan jenis tanah (land use types)
  - Hutan / padang vegetasi (flora dan fauna)
  - jenis dan fungsi vegetasi dan fauna
  - kepadatan (density)—kerapatan dan jumlah
  - tingkat dominan flora and fauna
  - tingkat migrasi fauna
  - tumbuhan dan hewan yang dibudi-dayakan
  - pengelolaan hutan dan padang
  - perubahan luasan (hutan/padang) lahan pertanian
  - kerosakan yang ditimbulkan oleh fauna usaha tani dan keseimbangan alam
  - keadaan (condition) vegetasi di batas batas (ecotone/pinggir) antara hutan, padang, kebun
  - praktek praktek pengambilan dan pengelolaan hasil hutan
• praktek praktek pembakaran padang, hutan, kebun
• Air sumber
• jumlah dan lokasi sumber air permanen dan temporer
• kepemilikan (ownership) sumber air
• lama ketersediaan (availability of surface water)
• debit air (volume per second)
• kedalaman air tanah
• pemanfaatan (pertanian, ternak, rumah tangga)
• pengelolaan sumber air (aturan, perlindungan), including fire management practices
• kelembaban tanah
• lama bulan hujan (also need rainfall data)

3. Sosial budaya (aspects)—Struktur dan stratifikasi; nealitan kearitan lokal; pola membakar
• Struktur dan stratifikasi
• jumlah dan nama suku (klan)
• stratifikasi dalam setiap klan, masyarakat
• hubungan (connection) antara klan
• jumlah / dominasi klan dan masyarakat (pengaruh=influence)—catatan: semuanya dalam rentang waktu
• pola hubungan antara strata
• pola kepemimpinan dalam masyarakat (formal dan informal)
• pola pemukiman
• bentuk (form) dan behan rumah
• institusi dan kelembagaan
• pola perpindaham / migrasi
• nilai-nilai norma-norma yang terkait degan lingkungan
• pola kerja sama dalam masyarakat
• penlaku pengelolaan lingkungan (environmental)
• pengaruh agama dan kepercayaan (dignity) dalam kehidupan (livelihood) masyarakat
• pengaruh pemerintah (government) dalam kehidupan masyarakat
• tempat ritual dan seremonial adat
• pengaruh pendidikan (education) dalam kehidupan masyarakat
• pengaruh komunikasi
• pengaruh politik
• persepsi masyarakat terhadap proyek pengelolaan api

4. Timetable

A revised timetable is attached for the first period of the project, up until the end of July 2003.
* Persons responsible for each activity or report, see key below.

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<tr>
<th>Schedule</th>
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<tbody>
<tr>
<td><strong>Activity</strong></td>
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<tr>
<td><strong>Week</strong></td>
</tr>
<tr>
<td>Visit Location In Ngada</td>
</tr>
<tr>
<td>Sumba Team starting PRA</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th><strong>Trial draft PRA in Sumba and Ngada</strong></th>
<th><strong>SD, POs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revise PRA, check with CIFOR</strong></td>
<td><strong>SD, POs, CIFOR (TD?)</strong></td>
</tr>
<tr>
<td><strong>Reporting of final PRA methodology</strong></td>
<td><strong>SD, POs</strong></td>
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<tr>
<td><strong>Methodology Review:</strong></td>
<td></td>
</tr>
<tr>
<td>Report to ACIAR outlining methods, esp. obj. 3, also other components</td>
<td><strong>SD, GH, BM, RF, JRS, CIFOR</strong></td>
</tr>
<tr>
<td><strong>GIS training, Bogor &amp; NTT</strong></td>
<td><strong>RF, CIFOR, BM</strong></td>
</tr>
<tr>
<td><strong>Implement PRA:</strong> data collection, database, GIS mapping, collection of fire data, and fire mapping</td>
<td><strong>SD, POs</strong></td>
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<tr>
<td><strong>POs:</strong> Analysis of PRA data, recommendations for future activities</td>
<td><strong>SD, POs</strong></td>
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<tr>
<td><strong>PO Assistants:</strong> socialising and collecting of extra field data, assisting GIS officers with mapping</td>
<td><strong>POs, APOs</strong></td>
</tr>
<tr>
<td><strong>GIS officers:</strong> assisting POs with data collection; field mapping</td>
<td><strong>POs, GIS</strong></td>
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<tr>
<td><strong>POs:</strong> report writing, planning for demonstration activities</td>
<td><strong>SD, POs</strong></td>
</tr>
<tr>
<td><strong>PO Assistants:</strong> socialising and collecting extra field data, assisting POs</td>
<td><strong>POs, APOs</strong></td>
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<tr>
<td><strong>GIS officers:</strong> assisting POs with data collection; field mapping</td>
<td><strong>POs, GIS</strong></td>
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<tr>
<td><strong>REVIEW WORKSHOP:</strong> for review of reports from POs</td>
<td><strong>SD</strong></td>
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<tr>
<td>Preparation of final planning report</td>
<td>SD, POs</td>
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<tr>
<td>Key to personnel:</td>
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<tr>
<td>SD = Siliwoloe Djoeroemana, PO = Project Officers, APO = Assistant Project Officer, GIS = GIS officer, CIFOR = responsible CIFOR officer, TD = Tony Djogo, GH = Greg Hill, RF = Rohan Fisher, BM = Bronwyn Myers, JRS = Jeremy Russell-Smith</td>
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**Thursday 20 March**

Jeremy and Rohan and the Sumba and Flores project teams made a field visit to the field site at Lukuwingir, south of Kiri Tana.

During the week after the meeting in Waingapu, Jeremy, Siliwole, Rohan and the project teams based in Waingapu and Flores visited the field sites on Flores.
## LIST OF PARTICIPANTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Role in project</th>
<th>Address</th>
<th>Telephone</th>
<th>Faxsimile/ email</th>
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<tbody>
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<td>BAPPEDA East Sumba, Sumba</td>
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<tr>
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<td>Project officer East Sumba</td>
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<tr>
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<tr>
<td>Josef Maan</td>
<td>Project officer Ngada</td>
<td>BAPPEDA Ngada Jl. Ade Irma Suryani, Bajawa, Ngada</td>
<td>(0384) 21035</td>
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<tr>
<td>Samuel Awang</td>
<td>Project officer assistant Ngada</td>
<td>BAPPEDA Ngada Jl. Ade Irma Suryani, Bajawa, Ngada</td>
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<tr>
<td>Fransiska Rengo</td>
<td>Project officer assistant Ngada</td>
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<td>GIS officer Ngada</td>
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<td>(0384) 21035</td>
<td>(0384) 21035 <a href="mailto:wilfrid_ck@yahoo.com">wilfrid_ck@yahoo.com</a></td>
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<tr>
<th>Name</th>
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<tr>
<td>Siliwoloe Djeroeman a</td>
<td>Project leader NTT</td>
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<td>Project leader overall</td>
<td>Northern Territory University Darwin 0909, NT, Australia</td>
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<td><a href="mailto:greg.hill@ntu.edu.au">greg.hill@ntu.edu.au</a></td>
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<td>Jeremy Russell-Smith</td>
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<tr>
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<td><a href="mailto:t.djogo@cgiar.org">t.djogo@cgiar.org</a></td>
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<td>Day/Date</td>
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<td>Opening Line by:</td>
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<td>◊ Jan Rain Tukan</td>
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<td>◊ Emanuel Babu Eha</td>
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<td>Greg Hill</td>
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<td>Objective and process of the inception meeting by</td>
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<td>Siliwoloe</td>
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<td>Jan Rain Tukan (BAPPEDA NTT)</td>
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<td>CIFOR fire research and application of methodology in</td>
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