

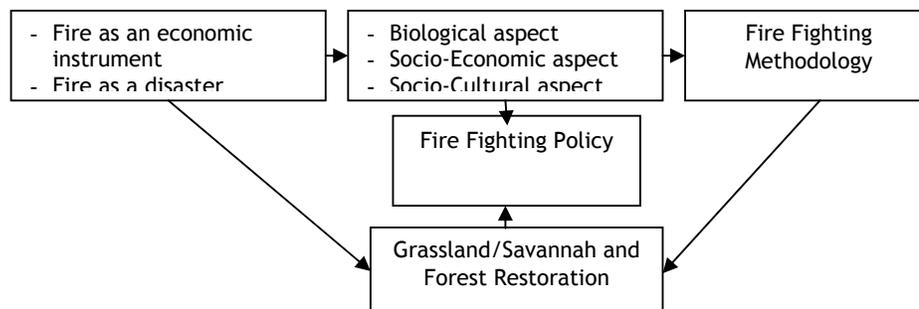
Meeting Notes

One-day Workshop - East Sumba

Title : Fire Management of Grassland, Savannah, and Forest in East Sumba - East Nusa Tenggara Province, Indonesia
Time : 2 August 2004 (09.00 - 17.15)
Place : Meeting Room of BAPPEDA Office, Waingapu

Opening (9.00 - 09.30am)

- 1. Report of the Organizing Committee, Yohanis Anggung Praing, Kepala Bidang Ekonomi BAPPEDA**
 - This workshop was initiated by the Regional Planning and Development Agency (BAPPEDA) of East Sumba District, as a response to tackle the problems of grassland, savannah and forest fires in East Sumba.
 - The workshop took place over one day on 2 August 2004 from 9:00am to 4:30pm (Central Indonesian Time) at the BAPPEDA East Sumba District Meeting Hall. The theme of the workshop was Management of Grassland, Savannah and Forest Fires.
 - The objective of the workshop was to:
 - Open a discussion on the problem of Grassland, Savannah and Forest Fires in East Sumba as seen from the viewpoint, knowledge and experience of various stakeholders;
 - Form a unified perception and definition of grassland/savannah and forest fires, in relation to their causes and impact;
 - Formulate recommendations for proactive steps in respect of the future handling of grassland/savannah and forest fires.
 - The workshop was attended by 40 participants (all invitees) from the four stakeholders as follows:
 - East Sumba District Government represented by seven technical administrative offices; namely, the Chief of the Forestry Office, the Chief of Community Development and Food Sustainability, the Chief of the Agriculture Office, the Chief of the Plantations Office, the Chief of the Livestock Office, the Chief of BAPEDALDA, and the Chief of the Agriculture Information Office (KIPP); as well as one non-technical administrative office; namely, the Chief of BAPPEDA (also as the party convening the workshop) together with the Economics Affairs Chief, the Chief of Research and Development, and staff.
 - Non-government organizations represented by two organizations; namely, Yayasan Tananua and Yayasan Sumba Sejahtera.
 - International research institutions represented by two organizations; namely, the ACIAR Fire Management Project and CIFOR.
 - Community representatives comprising four villages (Pandawai sub-district) that were chosen as the location for research and development; namely, the Pandawai sub-district chief, the Lukuwingir village chief, the Ngaru Kahiri sub-village chief, the Kiritana village chief, the Kuhu Watu sub-village chief and the Marada Mundi sub-village chief.
 - The total cost of convening the workshop was Rp 5 million, taken from the East Sumba district budget and aid from ACIAR through CIFOR.
- 2. Speech of the Head of BAPPEDA, Uumbu Tamu Kalaway:**
 - Fires in East Sumba invariably start from grassfires that then spread to forests and plantations.
 - Fire is an economic instrument, but it can be a disaster if not properly controlled.
 - There are biological, socio-economic and socio-cultural aspects to fires.
 - The General Policy Framework for Management of Grassland/Savannah and Forest Fires can be seen in the illustration below:



3. **Speech of the Deputy District Chief:**
 - Fire can first be said to be a problem and dangerous when it destroys private property or facilities.
 - Fires in East Sumba are generally either caused by agricultural activities, are unintentional or are from fires just lit for fun.
 - The main problem in East Sumba is the need for water. If there is water, reforestation, agricultural, plantation and other development activities can all be undertaken.
4. **Audio Visual Presentation of Fire Fighting in South East Asia, Yayat Ruchiat-CIFOR**
5. **Presentation of A General Overview of Bushfire Problems in Indonesia, Yayat Ruchiat-CIFOR**

Session I: Fires in East Sumba based on the Fire Management Project - ACIAR (10.00am - 1.00pm)

1. Presentation of Research Findings

- Fires in East Sumba according to a socio-economic study, Petrus Pandanga-Field Team Leader
- Fires in East Sumba according to a Remote Sensing/GIS study, Agustinus Umbu Mb. Rawambaku

2. Panel Discussion

- **Umbu Hina, Chief of Research and Development at BAPPEDA**

Question for the Research Team:

- What is meant by a fire that is caused by 'accident'?

Answer from Yayat Ruchiat:

- An accidental bushfire is one that is not deliberate. These types of bushfires in Indonesia are usually caused by fire that spreads from uncontrolled land clearance activities or is caused by negligence, as happens on the verges of the road network.

- **Juspan, Chief of Forestry Office**

In response to the Organizing Committee:

- Why is this workshop called 'fire management'? Wouldn't it be better to call it 'Fire Control'? 'Fire Management' has the connotation of giving a free reign to destroy the environment.

In response to Petrus Pandanga:

- Is the study site chosen by the ACIAR Fire Management Study Project taken to represent East Sumba as a whole? In my opinion, the research should be reviewed before it can be published as factual data. Forest coverage in Lukuwngir is only 9% of the total village area.
- A forest zone is different from forested land. A forest zone is land thus designated by the state, although it may not be forested. This should be taken into account in determining forest coverage in East Sumba, both for forest zones, forested land, forests in a critical condition and land in a critical condition. What is the definition of 'forest' used in this project?
- In the presentation, it was said that there is only another five years of timber supply left in East Sumba. What indicator was used to define this for the project? The Forestry Office has also studied this and has not reached the same conclusion as the project?
- In the presentation, it was said that 'fires can cause erosion'. What is the relationship between fires and erosion? Is there a direct relationship? Erosion is generally directly related to the state of hydro-orology. Even where there is no bushfire, erosion will still occur if the hydro-orological condition is not stable. Does this project have any scientific evidence of the relationship between fire and erosion in East Sumba? Based on the literature we have, there is a lot of evidence showing that grass can prevent erosion, mainly because its root systems. There are even types of grass that are fire-resistant as well as being able to prevent erosion. Has this matter been studied in the project?
- Has this project discovered the function of locust grass (*Chromolena odorata*) that has been disturbing the community and is believed to arise as a result of fires? Apart from spreading and growing quickly, *C. odorata* is proven to be fire-resistant. There is a possibility that *C. odorata* has an advantageous bio-physical function?

In response to Agustinus Umbu Mb. Rawambaku:

- The GIS findings are helpful, but is the extent of the analysis sufficient to represent all of East Sumba or even the whole island of Sumba? What about areas that are extremely susceptible to bushfires like Waibidi, Lewa, or Karera?

- What categories are used to determine 'forest'?
 - The results of the GIS analysis should be publicized or announced to all interested parties so that there is no confusion as to the data possessed by various groups.
- **Yandri, Chief of Forestry Office Planning Bureau**
View on the relationship between socio-economic activities and fire patterns:
 - Based on my thesis on East Sumba, '*there is a normative eco-centric relationship between humans and nature*'. The problem of bushfires is part of the issue of the relationship between nature and humans living within it; in this case, between natural resources (forests) and the communities living in and around the forests. Therefore, the ways of tackling the problem very much depend on how we make use of local strengths. In studying fire patterns, we need to also study the social and economic strengths of the local community.*Additional view on the relationship between fires and erosion:*
 - Erosion is often caused by activities in the upstream parts of the river, forest clearing and the clearing of land for agricultural use. Erosion affects water quality and water quality can affect the economic activities of downstream communities, such as the clay content in paddy fields. Both upstream and downstream communities will begin to feel 'threatened'. This threat is actually caused more by the level of awareness. Thus, erosion is more directly linked to the degree of awareness about the use of natural resources (forests as an example).*Analysis and research findings on the causes of bushfires in Sumba:*
 - Based on research findings from 17 villages in East Sumba, the causes of bushfires can be broken down into two categories:
 - a. Prestige; in that people in Sumba will be considered of a higher socio-economic level if they have lots of livestock, but they do not take into account whether the land can sustain sufficient fodder for their animals. They burn the land in the hope that it will produce new grass for their animals to eat. This is very often done speculatively. Prestige is also judged by the amount of land one owns, although thought is not given to how the land can be used except for hunting and wild grazing. Fires are therefore not considered a problem.
 - b. Harmony; in that burning is considered necessary to sustain grazing or to create agricultural land.
- **I Bagus Pumi, Chief of Community Development and Food Sustainability Agency**
In response to Petrus Pandanga
 - The big bushfire that occurred in Amaho-Matawae was caused by the spread of burning activities in grasslands.
 - The problem does not need to be discussed for too long; we need to focus on how to handle the problem.
 - For instance, in Karera, the main problem is how to get rid of locust grass that is believed to be caused by fires. The issue is how to handle it?
 - In Karera, there has been a Traditional Oath not to disturb the forest ('forbidden forest') that also contains rules forbidding burn-offs. The term 'Pakumba' is used to describe this. This is local wisdom that needs to be further studied. This local wisdom proves that traditional communities have long since known about the losses that can occur from damaging the forests and from fires. It would therefore better if this 'Pakumba' be studied in greater depth and even adopted in the broader community.

Explanation:

The results of this question and answer session will be used as input for the next session and for the activities of the Fire Management project.

Session II: The Perspectives of Technical Government Agencies, Village/Sub-District Representatives and NGOs on Bushfires in East Sumba (1.45 - 4.45pm)

1. Forestry Office; Juspan

Summary of presentation and paper followed by the results of discussion and recommendations:

- Forest fires are related to hydro-orology.

- Fires in East Sumba most often occur in grasslands and then spread into the forests. Based on observations, more than 200 hectares of land are burnt every year.
- Designated forest zones in East Sumba cover 237,000 hectares, 84% of which are grasslands and enclaves, whilst the remaining 16% are forested. Closed canopy forest in East Sumba now only covers 6.5% of the total area.
- Based on 2004 data, the total population of East Sumba is 200,000 and they are largely dependent on the forests.
- In 1920, there were few people living in East Sumba. Large increases occurred from the 1970s.
- Policies used in East Sumba are based on central/regional policies contained in Government Regulation No. 28/1985 and Law No. 41/1999. There are not yet any policies in place specific to the district (*kabupaten*) level because fires are still under control. Bushfires in East Sumba are not like those in Kalimantan or Sumatra.
- Local policies/wisdom based on community awareness already exist in the form of a Traditional Oath called 'Pakumba' ('forbidden forest') from the 'Marapu' belief. It is even stated in this oath that anyone who destroys or burns forest can be punished by death. However, in practice, no one has been put to death, although fires do occur. Nevertheless, such local wisdom is extremely valuable as it signifies the development of a high level of awareness.
- A Pakumba Ritual Ceremony took place in Umalulu in 1996 for the surrounding community. However, in 2002, there was a large forest fire. It was very difficult to extinguish given the prolonged dry season and lack of water. The fire was extinguished after the arrival of the rainy season.
- The Forestry Office does not have a special team to fight fires. The only team in existence is the Forest Police whose main task is to control illegal logging and comprises 23 men. Aside from the lack of technical human resources, there is no specific information or training on fire-fighting or supporting equipment.
- In terms of climate, East Sumba has an annual dry season lasting 8-9 months without water. Rain usually only starts in mid-November lasting through to mid-March.
- The main purposes of burning are to:
 - Hunt on open land;
 - Provide food for livestock in the form of new grass; it is very difficult to obtain food or water for livestock during 8-9 months of the year;
 - Open access roads into the forest to collect roots (edible tubers) as the main alternative source of livelihood for villagers in the dry season;
 - Clear and prepare land (in an uncontrolled manner);
 - Unintentional fires occurring along the roadsides.
- Land ownership in East Sumba is based on traditional culture whereby the chief of the traditional grouping (*Kabihu*) has status to own land. There is also communal land that may be freely used by all members of the *Kabihu*. However, one communal plot of land is sometimes recognized by more than two *Kabihu* groups. In general, this communal land is an area that has been designated by the state as a forest zone. There is frequently a conflict of interest with the government often giving in on the condition that the forest within the area may not be disturbed.
- Deforestation disturbs hydro-ology. Based on research and analysis undertaken by hydro-ology experts from a university in Java at the Kambaniru Dam (built in 1996), this dam will only contain water for 20 years given the rate of sedimentation as a result of erosion caused by deforestation.
- The Forestry Office is working intensively with NGOs and the surrounding community to handle forest fires.
- The handling of forest fires is undertaken on a project-by-project basis. Activities undertaken by the Forestry Office to handle forest fires include:
 - a. Education to raise community awareness about the danger of fires - not by forbidding fires in the preparation of agricultural land, but by teaching techniques for controlled burn-offs.
 - b. Training and the creation of firebreaks, both around the forests and community plantations with the main aim of protecting the trees.
 - c. Efforts to stop the spread of uncontrolled fires into forest zones by working with surrounding communities to create firebreaks, especially during the dry season.
 - d. The development of agro-forestry for the community both within and outside forest zones whereby the community can utilize forest zones for agriculture on the condition that they protect reforestation efforts. Each village may use an average of 25 hectares of land in forest zones for a period of three years (with collection rights [*hak pungut*]). Almost all these project locations have been successful, especially those within forest zones.

- e. Support for the community in Shellac (*kutulak*) production with the aim of providing an alternative source of income that does not damage the forest. This program is conducted by providing technical training, assistance in Shellac bacterial growth for the Kesambi and Kaliandra host trees as well as seeds for these host trees. This program is already in operation in the northern, eastern and southern regions of East Sumba.
- f. Choosing and planting types of reforestation plants that withstand fire around forests and community agricultural lands. The only problem with this is that the bark is often damaged by livestock seeking water during the dry season.
- g. Support and encouragement for the initiatives of the community surrounding the Wanggameti National Park who formed *KMPH* (Community Forest Conservation Groups). The direct supervision of this initiative was handled by the relevant government technical agencies (Forestry Department and Bapedalda) together with NGOs (Tanania and Kopesdal). The government and NGOs only gave guidance and financial support at the beginning of the project. The *KMPH* comprise community leaders and began to be founded in 1996. There are currently seven active *KMPHs* spread around Wanggameti, Wanggabewa, Wangga, Paluk, Kabikoloso and Tebi.
- h. Law enforcement against forest burning. Although this is difficult given the complexity in finding, investigating and collecting evidence, law enforcement is being conducted intensively in collaboration with community information networks among those who already have a high level of awareness about this problem. The type of law enforcement that has been successful is the policing of illegal logging. Proof can be seen in the capture of a gang and the imprisonment of the gang leader (a village chief) for 7 months.
- Finally, the forests cannot be considered merely as a natural resource. We must view them in the context of the entire socio-economic and cultural picture. Fires are not the only problem in forestry management. In the context of responsible forestry management, law enforcement and collective supervisory mechanisms in which all stakeholders play a part is the other side of a sustainable natural resource management policy.

2. BAPPEDA; Yohanis Anggung Praing

Summary of presentation and paper followed by the results of discussion and recommendations:

- Forest coverage in East Sumba is not extensive. Only 10 - 20% is categorized as woodland/savannah and is scattered around the main settlements. This is because settlements have generally been built near water sources and these areas are usually forested.
- Deforestation started in the 1970s with the clearing of forests for agricultural land, logging, illegal logging and fires.
- As a result of this deforestation, since the 1980s, grasslands have expanded to cover approximately 60% of the total area of East Sumba.
- Fires almost always start in fields and spread to forests and community agricultural land.
- In 2002, there was a huge fire in what could still be categorized as primary forest in Umalulu-Paberiwei (\pm 100 km from Waingapu). This fire killed cattle, wild animals and some villagers' homes. The fire spread from an uncontrolled grasslands fire.
- Based on analysis made, the fire occurred because of a decline in the quality of grass fields which has a positive correlation with the decrease in the number of grazing animals. Grassland fires are increasingly common during the dry season that usually lasts from March to November.
- It is also possible that the fire was caused by the clearing of new agricultural land in the forests, where the land is more fertile.
- The burning of dry grassland to provide new food for livestock (new grass) could have been the cause.
- There is also the possibility of there being community conflict over animals and land.
- Traditional wars occurred in Sumban society until the 1970s. In general, groups adhering to customary law lived on hilltops so they could observe the arrival of enemies. Since traditional wars have become increasingly less frequent, these groups have started to come down into the valleys near water sources and settle there. Since the 1980s and 1990s, these communities have been actively engaging in agriculture and forest clearance for new land, moving from place to place. The result is deforestation, leaving behind increasingly large tracts of land in East Sumba as grassland, which is vulnerable to uncontrolled fires.
- Various BAPPEDA programs are designed to relieve pressure on forests, such as:
 - a. Bio-grass in fulfilling community fuel needs;
 - b. Fire Management, especially education and tree planting (5 to 10 trees per family);
 - c. Eradication of *Cromolena odorata* through bio-control using fly dusting.

3. Community Development and Food Sustainability Agency (BBKP); I Bagus Pumi

Summary of the presentation and paper followed by the results of discussion and recommendations:

- Sumba District is hilly; the northern region is a largely infertile flat rocky plain, whilst the southern region is steep.
- Forest, fields, and land in East Sumba are natural resources that are very important from an economic and ecological point of view.
- Factors causing fires include:
 - a. Villagers engaging in the hunting of animals (pigs, deer);
 - b. The custom of farmers in providing new grass for livestock by burning fields;
 - c. The custom of the community in opening up new land for plantations and agriculture using slash and burn methods;
 - d. The continued custom of nomadic farming.
- The East Sumba District government needs to put in place a strategy whereby a planning secretariat for handling grassland and forest fires is established that will develop links through all sectors in the field. The secretariat will formulate concepts to be translated into working practices by the relevant sectors. The issues that need to be developed by this group and translated into action by the sectors are:
 - a. Educational programs about the role of the community in maintaining the ecological balance in fields and forests;
 - b. The making of a film about the current and future East Sumban environment as well as what is desirable;
 - c. The design of an environmentally-friendly agricultural planting program of economic value;
 - d. The promotion of an 'anti-burning and fire' culture in Sumba;
 - e. An anti-forest/field fires award for people and groups;
 - f. The formation of fire-fighting teams in each sub-district and village;
 - g. Assisting the community in developing local food commodities;
 - h. Designing integrated programs for the development of food, livestock, plantation and forestry commodities.
- East Sumba District with its dry climatic conditions requires care and a collective spirit in handling the problem of grassland and forest fires and burning.
- Wide green fields with wild horses roaming is an image we all wish to see for future generations of Sumba.

4. Livestock Office; Gidion L. Umbu Sappy

Summary of the presentation and paper followed by the results of discussion and recommendations:

- Fires in East Sumba are closely related to grazing activities. The community's understanding is wrong in burning fields to supply new grass for livestock because such burning will not create the growth of quality grass sufficient to feed livestock. This activity has, however, become a custom that is difficult to eradicate.
 - The burning of fields, which starts before the dry season arrives, has not been proven at all advantageous for livestock because it decreases the supply of livestock feed.
 - The availability of feed for livestock in East Sumba fluctuates greatly. In the rainy season there is plenty of food, but in the dry season the supply of food is very limited.
 - The dilemma is as follows:
 - The supply of livestock feed in Sumba depends greatly on seasonal conditions. There is still no effective and cheap technique for supplying livestock feed that can be adopted by the community when the long dry season (8-9 months) arrives. Many livestock become thin and eventually die during the dry season.
 - The development of livestock and increase in their numbers has been hindered. This is caused by the lack of feed and water when they are born. Mating and impregnation of livestock occurs during the rainy season (December - February), and birth in the ninth month occurs during the dry season (September - October) at the most difficult time with water and food shortages.
- This raises the possibility of farmers looking for solutions in respect of food supplies by burning fields.
- According to the statistics of the Livestock Office, stock numbers have not fallen and are in fact increasing, although the increase is not large. This finding is supported by annual vaccinations and five-yearly *OP3T*. Only about 50% of livestock are counted and vaccinated; there are many more animals grazing in the wild. However, it is just assumed that estimates of stock numbers have reduced.

- It is not accurate to suggest that a decrease in stock numbers is associated with cultural aspects within the community. Based on analysis, East Sumban communities that stick to their culture tend to keep livestock. A higher socio-economic level is associated with a tendency to continue to develop livestock.
- Stock exports from East Sumba are not particularly high when compared to other areas like Java. Prices fluctuate greatly according to community needs at a particular point in time. Livestock sales facilities have not been operating as well as had been expected.
- Stock ownership in East Sumba cannot be measured based on population or the number of households. Stock ownership and land to graze them on East Sumba is still very much 'status quo'; that is, they are owned by only certain people (*Kabihu* leaders). In actual fact, there is a lot of grazing land in East Sumba, but it is not given a lot of attention.
- An alternative approach to this problem is to look at land distribution. This has been done, but the availability and spread of water sources is still the main problem. Thus, water management needs to become the main priority before this alternative is adopted.
- More research needs to be undertaken into the relationship between fires and burn-offs and the availability of livestock. According to the results of an early study, there are 33 types of grass in East Sumba of which 17 are of high nutritional value for livestock. The whereabouts of these 17 types is still not known for certain. If they have decreased, is this related to bushfires? This is possible because the invasion of *C. odorata* is predominant and has possibly crowded out types of grass with greater nutritional potential.
- Apart from continuing to conduct routine supervision and data collection of livestock, the Livestock Office has done a number of important things:
 - A Breeding Center was built in 2002 in the village of Matoe Merigu with the objective of improving the genetic quality of local cattle by breeding them with Brahman and Ongole cattle from Australia. There are currently 125 Brahman and 25 Ongole cattle.
 - Stock feed factories have been built through various cheap and effective alternative means which can be adopted by the community. This enterprise will definitely reduce the need to burn off land to create stock feed.
 - We continue to seek breakthroughs to create an integrated climate for cooperation with other agencies, NGOs and the community.

5. Agriculture Office; Makahar Djawarai

Summary of the presentation and paper followed by the results of discussion and recommendations:

- Agriculture in East Sumba District is still dominated by small-scale enterprises with an average size of 0.25 to 2 hectares per household.
- Problems include:
 - a. Low levels of knowledge and adoption of agricultural technology;
 - b. A tendency for agricultural production to decline;
 - c. Most farming enterprises are not dynamic enough.
- The objective of the presentation/paper on the agricultural sector is to:
 - a. Unify understanding and perceptions about the correlation between knowledge and individual and group attitudes toward actions in the agricultural sector, which is often said to be the cause of fires;
 - b. Convey ideas about alternative measures for the prevention and containment of fires.
- Factors causing fires include:
 - a. Dry land usage is very dependent on natural resources like forests whose soil is still fertile and close to water sources.
 - b. In the preparation of agricultural land, burning of grass and bushland continues as both a habit and something that is considered normal;
 - c. A lack of knowledge and awareness among communities.
- Although we are aware that the efforts of the Agriculture Office are still not optimal, some things that have and will continue to be done include:
 - a. Making the issue a core component of agricultural education campaigns;
 - b. Distribution of printed (leaflet/poster) and electronic media materials;
 - c. Expanding the farming community's participation;
 - d. Facilitating farming groups in their ability to draft and agree on rules and sanctions in their community;
 - e. Increasing the role of farming self-help educational groups;
 - f. Making use of Agricultural Information Centers (BPP).

- Educational strategies to be undertaken include: (sic.)

6. Plantations Office

Summary of the presentation and paper followed by the results of discussion and recommendations:

- Plantation activities are small in their impact when compared with fires. Plantations tend to suffer more losses from fires.
- It is known that there are 55,469 hectares of potential plantation land in East Sumba, including fallow land of 20,693 hectares. This fallow land is dominated by grass fields that tend to get burned off every year.
- Fires in East Sumba always begin with fires in fields and then spread into plantation land, including both land that has already been developed and land that has just been planted.
- Plantations suffer billions of rupiah worth of loss every year due to fires. Cashew fruit (*jambu mente*) plantation land in 15 sub-districts covers 8,578.61 hectares, of which 3,693.7 hectares have been damaged or destroyed as a result of fires. If we calculate this mathematically, with a cashew fruit harvest of 400kg/hectare and a price of Rp 5,000 per kilogram, the loss per hectare is Rp 2,000,000. If this is calculated cumulatively from year to year, the impact of fires on cashew fruit plantations alone is Rp 7,387,400,000.00.
- The development of plantation land in East Sumba is difficult given the complexity in predicting when fires will come and spread.
- One impediment that stands out in East Sumba District is the occurrence of burning of plantation land during the dry season every year despite the fact that regulations and technical guidelines preventing the burning of land have long been put into effect and publicized.
- Based on analysis from the plantations sector, factors causing fires include:
 - a. There is no weed control during the rainy season so that plantation land tends to get clogged up with weeds. Burn-offs are often used to clean out weeds from plantation lands and to prepare the land for the next planting. These burn-offs often spread to fallow land, to other plantations and to forests.
 - b. Land located far from settlements is often not managed.
 - c. Plantation lands are often located far from one another or are not integrated into one place. The space between such land is fallow, which easily catches on fire or acts as a catalyst for spreading the fire.
 - d. Farmers lack understanding about the importance of firebreaks.
 - e. There are not yet many hetero-cultural integrated plantations with combinations of timber plantations or forest plantations. Given this mono-cultural system, farmers depend on just one crop and this is later just left without intensive maintenance. In fact, a variety of plant types would be of greater value and its produce sustainable (multi purpose species). Fire-resistant plants would also be useful if planted along the outskirts of the plantation, and their crop harvested later at the time of felling.
- Diversification and integration within a system of 'People's Plantations' will minimize risk as a 'mono-cultural' system is no longer sustainable. Concrete data on the added value of integrated forestry, plantations, agriculture and grazing is quite significant, although it is worth studying in more depth.
- One strategy that the plantations sector will undertake is to try to ensure that farmers obtain good plantation land through a plantation management program within a zone known as the Industrial Zone for Community Plantations (KIMBUN). Integration of forest and plantations is one of the preconditions for the KIMBUN. It is therefore necessary for continued action, explanation and education to take place.
- Activities undertaken by the Plantations Office include:
 - a. Encouraging farmers to manage plantations in an optimal manner through training programs, education and publications (eg. pamphlets, stickers);
 - b. Opening up new plantations by processing the land; not through burn-offs;
 - c. Encouraging farmer groups, NGOs and relevant government agencies to become involved in management;
 - d. Activating the development of integrated plantations with forests, plantations, agriculture and livestock;
 - e. Reminding and training villagers to make firebreaks for plantations at a distance from one another and for plantations directly bordering fallow land.

7. Bapedalda

Summary of the presentation and paper followed by the results of discussion and recommendations:

- Forest fires continue to be a national problem.

- Factors causing fires include:
 - a. The clearing of shifting agricultural land using slash and burn methods;
 - b. Pig, rat and deer hunting;
 - c. Burn-offs to produce new grass to be used to feed livestock;
 - d. Disposal of unextinguished cigarette butts;
 - e. Social jealousy since many farmers take grass directly from the paddock without purchase, seeking permission or employing the communities from around the field;
 - f. Weakness in environmental law enforcement.
- Initiatives undertaken by Bapedalda include:
 - a. Coordinating with related agencies, NGOs and all components of society, especially in respect of educational campaigns about the dangers of fires and efforts to prevent and fight them;
 - b. Teaching communities about forest and grassland fire management in Lewa sub-district (in the villages of Watumbelar, Umamanu and Lihau), and Nggaha Ori Angu sub-district (in the villages of Kombapari, Lailara and Mandas)
 - c. Publicizing East Nusa Tenggara Governor's Degree No. 49 of 1999 on Forest and Grassland Fire Control;
 - d. Supporting the '*Rotu Padang*' Traditional Oath about bans and sanctions for grassland, savannah and forest fires.
- Strategies to be followed by Bapedalda include:

Encouraging the participation of relevant government agencies from the district, sub-district to village level, NGOs, businesspeople and the community in efforts to manage forests and fields.

8. NGO Yayasan Tananua and NGO Yayasan Sumba Sejahtera

Add:

- The importance of intensive community guidance by relevant government agencies in cooperation with all stakeholders, by:
 - Strengthening local institutions;
 - Encouraging the development of farmer groups (*Wana Tani*);
 - Raising future awareness through the schools.

9. Pandawai Sub-District and Working Groups (FGD)

Add:

- As a group in society, we are neither too disturbed by burn-offs and fires nor find them too problematic. In our opinion, fires are a normal part of our life.
- We are more interested in seeing how we can increase our standard of living.
- We require ongoing guidance from all parties in increasing our standard of living.
- The community is in need of more knowledge and training about new livelihoods and other alternatives.
- We need assistance in the form of public water supply facilities.
- We need seeds to grow plants, forests and fruits that can be managed by the community.
- We need government assistance for breeding stock.

Explanation:

Based on an agreement between the workshop participants, the discussion took place directly (without division into different topics for each speaker) and the drafting team recorded the results of the discussion and advice and recommendations from each presenter.

Closing (5:00 - 5:15pm)

1. The drafting team will record the results of the discussion which are to be conveyed to the East Sumba District Government level through the District Chief, to the Provincial Government of East Nusa Tenggara through the Governor / BAPPEDA provincial office, and to Fire Management Project donor ACIAR through CIFOR.
2. This workshop was the inaugural meeting to discuss the problem of fires in East Sumba and is to be followed up by further meetings for technical implementation.
3. It is recommended that further meetings need not be formal, but should be regular as in roundtable discussions.

Documented on 3 August 2004 by

1. Yayat Ruchiat (Research Officer, Environmental Services and Sustainable Use of Forests - CIFOR)
2. Yohanis A. Praing (Chief of Economic Affairs, BAPPEDA, East Sumba District)
3. Uumbu Tamu Kalaway (Chief of BAPPEDA, East Sumba District)