

# **United Nations Environment Programme**

## **Evaluation Report on Medium Sized Project UNEP/GEF - GF/3300-98-01 Emergency Response to Combat Forest Fires in Indonesia to Prevent Haze in South East Asia**

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## **List of Acronyms**

ADB	Asian Development Bank
AMMH	ASEAN Ministerial Meetings on Haze
ASEAN	Association of South East Asian Nations
CSU	Coordination and Support Unit (of ASEAN for the Implementation of the RHAP)
DoE	Department of Environment (Malaysia)
FSMP	Fire Suppression Mobilisation Plan
GHG	Green House Gases
GEF	Global Environment Facility
HTTF	Haze Technical Task Force (of ASEAN)
MoF	Ministry of Forestry (Indonesia)
RETA	Regional Technical Assistance (from ADB)
RHAP	Regional Haze Action Plan (of ASEAN)
RRC.AP	Regional Resource Centre for Asia and the Pacific (of UNEP)
SRFA	Sub-Regional Firefighting Arrangements (for Borneo and Sumatra, under the ASEAN HTTF)
UNEP	United Nations Environment Programme

## **Acknowledgements**

The staff of UNEP RRC.AP and ASEAN provided support and effective assistance. They did this in a very friendly, warm and efficient manner for which they should be congratulated and I am very appreciative of. The willingness and interest of the many staff and participants in the various activities was important in rapidly developing an understanding and insights into this UNEP GEF project and is also appreciated. Finally thank you to UNEP for the opportunity to again engage in fire related issues in South East Asia.

## Executive summary

In the rationale used to develop this project it was assumed that fire fighting, capacity for it, structure, skills, equipment and organisation, were a key factor in the extent and persistence of the fires. Subsequently it has been established that while fire suppression capacity does indeed need improvement, the level of it is not at the root of the fire “problem”, the problem definition for this design was inadequate. A factor in part explained by the emergency nature of the response.

Future projects designed, as a response to environmental emergencies should clearly separate the short-term emergency nature of meeting immediate needs and efforts required to address medium and longer-term aspects such as working to mitigate and manage underlying causes.

A critical contributor to clarity for future fire related projects is the effort put in to clearly defining the “fire problem”.

There may be a need to boost the capacity of disaster evaluation missions to draw the distinction between reaction to the emergency aspects and the solution to the causes and form recommendations for action appropriately categorised.

Co-ordination of all existing efforts to ensure the best use of available resources for fighting and preventing the current forest fires in Indonesia was intended. Three meetings on the Indonesian fires were held in Geneva in 20<sup>th</sup> and 21<sup>st</sup> April 1998 convened jointly by UNEP and OCHA. The meetings consisted of an Expert Workshop on Fire-fighting; and Meeting on the medium to long term programmes for responding to the “Indonesian fire emergencies” and then a Meeting of donors.

From a fire management perspective the costed action plan that was developed was unrealistic and expensive (USD 9.7 million). The meeting on medium to long-term efforts generated ideas and concepts to address the issues of fire, as they were understood at the time. The understanding reached by the donors meeting was a general one and did not include any specific activities for follow up. During this evaluation it was not clear that the set of ideas or the follow-up had been developed further.

As a general comment the lead that was initially taken by UNEP on behalf of the UN system does not seem to have been sustained. The initial pulse of activity in Geneva does not appear to have generated an ongoing effort by UNEP on fires at the global level and it appears the outcomes of the meetings held in Geneva, if still appropriate, remain to be carried forward. Within South East Asia there has been an ongoing involvement under the UNEP GEF project that has seen UNEP active in fire issues and aspects for the region.

There remains a need for international level interaction and focus on fires to be coherent. The recent International Wildland Fire Conference held in Sydney, Australia has recognised this and delegates are attempting to work collectively to raise the profile of fire related issues and work towards improvement through a series of regional consultations and events in the medium to longer term.

With the mandate on behalf of the United Nations it is appropriate for UNEP to review the efforts on fire management that are extant under the UN system (OCHA, INDR Working Groups, and others) for consideration of its future role and ensuring effectiveness of the role in fire related issues.

The fire “problem” is more complex and options for solutions less clear than initially understood by most actors involved in South East Asia’s fires. The needs and effective solutions will take a considered, consistent and protracted engagement by the parties involved – UN agencies, donors, government agencies, provincial officials, NGOs and communities. This is increasingly recognised, however the means to frame and encourage the levels of engagement, investment and commitment required are yet to emerge.

The design of this project was quite general and did not provide significant clear guidance for activities and implementation. This was used to advantage given the strong interaction that was made with the ASEAN Haze Technical Task Force (HTTF), enabling efforts to be agreed, understood, shared and supported.

A consistent theme of this evaluation was that the activities had all been valuable in both direct and indirect terms. There was consequently a consistent call for additional resources (funds) to maintain the activities and repeat the efforts in other parts of Indonesia and elsewhere.

This UNEP GEF Emergency Response to the fires in Indonesia has stimulated and leveraged other efforts. It provided a basis for the ASEAN Agreement on Transboundary Haze Pollution and significant support to the Regional Haze Action Plan, the Immediate Action Plans and other key pilot activities. For the Government of Indonesia to effectively play the role it should in addressing the local, provincial, national and regional concerns about unwanted and damaging fires a long-term and consistent investment of time, expertise and funds is required so that capacity can be increased to effectively match the need to act.

The project insights could be clearly and simply presented to a dissemination meeting, of decision makers in Indonesia, perhaps associated with a HTTF or SRFA meeting. This presentation should be based strongly on the positive aspects, the lessons learned, areas needing improvement and interesting aspects as determined by various project reports and this evaluation. Project reports, reviewed, summarized, edited and re-written for a general audience, should be published to emphasise the insights and experience obtained.

The impact with respect to biodiversity and conservation objectives of the project is an indirect one, as it was always going to be. Fires in the tropical regions are a symptom of the influences and underlying causes that are impacting on forests and lands. Addressing fires directly in a technical fashion was an approach that would only ever treat the symptom and not cure the causes. This project through testing the first step approaches to address fires (fight them) has worked through the ‘layers’ of needs and arrived at addressing the underlying causes of fire, smoke and haze.

## Preamble

The circumstances at the time of project conception and development are an important factor in understanding its design. In mid-to-late 1997 much of the world appeared to have ‘caught fire’ with significant, unwanted, damaging fires in South East Asia, Russian Far East, Canada, Central and Meso America, the Mediterranean Basin and other parts of the world. Combined with the economic crisis that was being felt at the time this made the situation in many senses desperate from a number of perspectives. People, biodiversity, natural areas, diverse economic sectors, national governments, the private sector, civil society and the atmosphere it seemed were all being pushed to, and perhaps beyond, their limits. The Secretary General of the United Nations (UN) asked the Executive Director of the United Nations Environment Programme (UNEP) to take the lead in coordinating UN efforts to “combat the fires”.

To enable swift reaction, this project was prepared as an “emergency response” At the time of the fires an understanding of the nature of the fire related issues in Indonesia was being formed but not at that time clear, nor is it completely understood in 2003 and new insights continue to be gathered and created based on new research and information and re-assessment of existing materials and data<sup>1</sup>. This “Emergency Response to Combat Forest Fires in Indonesia to Prevent Haze in South East Asia” was first prepared in early March 1998 and based on the understanding of the situation at the time, an impression that also framed and formed most other short-term efforts to assist South East Asia with the “haze” (smoke) problem experienced. Dennis (1999) identifies that projects on fires are generally in response to significant fire events. The trans-boundary smoke, widespread fires and large economic costs combined with local and regional scale impacts ‘strongly suggest a problem’.

Before 1994 there was a sense that the fires were a one-time event and related to weather and climate conditions. Following 1994 there was a recognition that the fire related issues were more complex than shifting agriculture and weather and involved commercial companies, land use changes and perhaps climate. Consequently projects began to include these wider issues as well as the basic needs of firefighting. This change reflects a shift from a mainly fire fighting response to one especially focused on determining the underlying causes of fires and their impacts. Of the 35 projects listed by Dennis (1999), 19 focussed on fire fighting capacity only, reflecting the initial thinking that inadequate technical knowledge and resources were the problem while 6 focused on improved understanding of underlying causes only. Ten projects of 35 sought to improve understanding as well as deal with the practicality of fire fighting. This range of projects covered the full spectrum of fire management. The majority of inputs to Indonesia at that time, and since, were on fighting the ‘fire’ problem by improving capacity to put fires out.

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<sup>1</sup> For example: Fires in Tropical Forests – throwing good money after bad? L. Tacconi, P.F. Moore, D. Kaimowitz. Paper to be presented to: 3<sup>rd</sup> International Wildland Fire Conference, 4<sup>th</sup>-6<sup>th</sup> October, 2003. Sydney, Australia.

This is only one of the needs and may well be the simplest to meet, but will not resolve the issue of fires and their negative impacts on biodiversity, people, economies and the broader environment.

This UNEP/GEF project has, to the credit of those involved, evolved and sought to work to resolve some of the fundamental issues that relate to the fire problem in Indonesia.

## **The Project**

This project was launched as a short term emergency measure to co-ordinate international efforts aimed at addressing the emergency situation arising from the Indonesian forest fires, and to assist the SEA countries in co-ordinating their regional efforts to mitigate the short and long term impacts of forest fires. More specifically, the project aimed at enhancing the fire-fighting capacity of Indonesia by providing the state-of-the-art techniques available and the technical assistance required. In addition, it aimed to establish an early warning system, and recommend appropriate preventative measures, so that the biodiversity (flora and fauna) rich areas can be protected from future fires and the emission of green house gases (GHG) caused by forest fires can be avoided. Thus, this regional effort was to enhance the capacity of the SEA countries to prevent and combat forest fires.

The project is consistent with UNEP's role to co-ordinate the United Nations System's response to the serious situation arising from the recent outbreak of forest fires in East Kalimantan, Indonesia. The Secretary General requested UNEP to monitor and co-ordinate the global assistance and expertise provided by the international community through the United Nations System. At the time of the Indonesian forest fires in 1997 there was no agreed approach for a structured response to environmental disasters. The Executive Director of UNEP, Dr. Klaus Topfer was requested by the Secretary-General of the United Nations to take the lead in coordinating the response by the UN to the fires in Indonesia and elsewhere.

In early 1998 the Global Environment Facility (GEF) approved a project to be undertaken by UNEP – “Emergency Response to Combat Forest Fires in Indonesia to Prevent Haze in South East Asia” with funding of USD750,000 and USD 100,000 in kind from UNEP. The initial activity of the project was managed from Nairobi, with additional staff in Geneva where a series of three meetings were held in April 1998.

The UNEP GEF Project undertook a range of activities under three key focal areas as set out below:

- Co-ordination of all existing efforts
  - Fire Experts Workshop
  - Medium to long term programmes for responding to the “Indonesian fire emergencies”
  - Meeting of Donors
- Establishment of early fires warning system
  - Sumatra Fire Fighting Aerial Surveillance Phases I & II
  - Establishment of a GIS Database for Sumatra, Kalimantan and Malaysia
  - Video Conferencing for the ASEAN Secretariat and SRFA Member Countries

- Training and capacity building
  - Sub-regional (Borneo) Training workshop of Trainers in Forest Fire Fighting
  - Immediate Action Plan Development and Field Training Exercise Sumatra
  - Capacity Development of the Coordination and Support Unit for the ASEAN Regional Haze Action Plan
  - GIS Training – Bangkok
  - Peatland Seminar, Narathiwat
  - 3rd International Wildland Fire Conference
  - Training on the Regional Fire Danger Rating System
  - Training Course for Investigators and Prosecutors
  - Establishment of Independent Community Groups at Village Level
  - Development of Guidelines for the Implementation of the Policy on Zero Burning
  - Development of Guidelines for the Implementation of the Controlled Burning Practices
  - Southeast Asia Fire and Haze Information Centre

## **Objectives of the Evaluation**

The objective of the evaluation is to establish project impact, and review and evaluate the implementation of planned project activities, outputs and outcomes against actual results. It is to be an in-depth evaluation. These objectives have been pursued against the background of the evaluator's approach to assessing outcomes. Evaluation and assessment provides a significant opportunity for an overall view of the project from conception and formulation through inception, implementation and impact. Such a perspective provides invaluable chances to learn and create a platform for further efforts that builds on the best, minimises the negative and avoids repetition of ineffective tactics and strategies. As such the recognition of shortcomings is treated as an opportunity to improve in the future by recognising where incremental or perhaps major changes can be beneficial.

The findings of the evaluation are based on:

- (a) Desk review of the project document, outputs, monitoring reports and relevant correspondence. Including the GEF Evaluation report on this project, prepared in 2000 as a part of the GEF biodiversity Programme Study to ascertain whether concerns outlined in that report have been met, and more generally if the project has resulted in achieving impact in the context of Indonesia's forest fires and on the sub region as a whole affected by the haze;
- (b) Review of specific products including datasets, surveys, publications and materials, reports of training courses and workshops highlighting the level of quality of stakeholder consultations, presentations, technical information and strategies;
- (c) Interviews with the Task Manager and other staff of ROAP and RRC/AP, and interviews with relevant staff of the ASEAN Secretariat.



- (d) Interviews with stakeholders in Indonesia including government representatives (national and local levels), local communities and NGOs whose actions affect the impact of this project.

## **Project Assessment**

### **Project Design**

#### *Project rationale and objectives:*

The original rationale for the project arose from the following concerns and concepts.

Millions of dollars are being spent to protect certain areas of the SEA countries of great biodiversity significance. This effort would be seriously put at risk if the areas of GEF interventions were going to be potentially destroyed or affected by forest fires.

In addition, a number of GEF projects aimed at reducing GHG emissions are under active implementation in the region. The objective of these GEF interventions could be jeopardised by the emission of enormous amount of GHG (e.g., CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and photochemical formation of tropospheric ozone) due to large scale burning of the forest, which is an important carbon sink. Tropical forest stores a large amount of CO<sub>2</sub>, and therefore, plays a key role in regulating the world's climate. This project aims to co-ordinate international efforts aimed at addressing the emergency situation arising from the Indonesian forest fires, and to assist the SEA countries in co-ordinating their regional efforts to mitigate the short and long term impacts of forest fires.

More specifically, the project aims at enhancing the fire-fighting capacities of Indonesia by providing the state-of-the-art techniques available and the technical assistance required. In addition, it aimed to establish an early warning system, and recommend appropriate preventative measures, so that the biodiversity (flora and fauna) rich areas can be protected from future fires and the emission of GHG caused by forest fires can be avoided. Thus, this regional effort will enhance the capacity of the SEA countries to prevent and combat forest fires. Without the financial support from the GEF and donor countries, it is unlikely that this regional effort will be realised.

These reasons and rationale are sensible. Over time it has been recognised that the underlying causes of fires in Indonesia are a critical factor to address. This project also, in part, dealt with underlying causes through efforts at the local level, which worked with communities, agencies, and an NGO at district level on the fire problem. In the rationale it was assumed that fire fighting, capacity for it, structure, skills, equipment and organisation, were a key factor in the extent and persistence of the fires. Subsequently it has been established that while fire suppression capacity does indeed need improvement the level of it is not at the root of the fire "problem", the problem definition for this design was inadequate, understandable given the time frame in which it was developed and the reactive approach widespread at the time. Interestingly, and commendably, during the implementation the activities were directed towards addressing underlying causes of fires in Indonesia.

## Project Implementation

### *Project outcomes:*

The intended result of this project was a strategy for fighting and preventing forest fires, including an early warning system, developed, while appropriate concrete measures to avoid forest fires identified, designed, established and adopted. Moreover, capacity building for implementing this strategy was to be undertaken and achieved.

These outcomes were to be achieved through activities in three ways:

- ❖ Co-ordination of all existing efforts
- ❖ Establishment of early fires warning system
- ❖ Training and capacity building.

Also identified as necessary were the related activities and management of:

- ❖ Public awareness raising
- ❖ Monitoring and evaluation
- ❖ Miscellaneous/project support services

These aspects are reviewed under the headings above.

### **Co-ordination of all existing efforts**

OUTCOME - Co-ordination of all existing efforts to ensure the best use of available resources for fighting and preventing the current forest fires in Indonesia.

### *Activities Undertaken*

#### *Meetings of Fire Experts, International Organisations and Donors*

At the time of the 1997 fires there was UN organisational response capacity for environmental disasters although there had been ideas on the need to improve this and increase the resources available dating back to 1986.

Three meetings on the Indonesian fires were held in Geneva in 20<sup>th</sup> and 21<sup>st</sup> April 1998 convened jointly by UNEP and OCHA. The meetings consisted of an Expert Workshop on Fire-fighting; and Meeting on the medium to long term programmes for responding to the “Indonesian fire emergencies” and then a Meeting of donors.

#### *Fire Experts Workshop*

The expert workshop was held on 20<sup>th</sup> April attended by fire-fighting experts with extensive practical experience in Indonesia from Australia, Canada, Chile, Finland, France, Germany, Indonesia, Malaysia, the Netherlands, the Russian Federation, Singapore, Spain and the United States of America.

The experts worked in three groups to address the issues of the need for immediate response, how to avoid a repetition of the fires and who should do what at which levels in organisations.

The short term needs involved the description of interventions that might be considered including training, fire equipment, Incident Management Specialists, Government Liaison teams, Aircraft (helicopters and fixed-wing), communications (mobile phones, satellite phones and radios) and funding for various aspects (food, accommodation, fuel, salaries, equipment and logistics).

Preventing recurrence of fires appropriately identified prevention as a key focus with activities at national scale where the effort could be on remote sensing information, large land owners, breach of government policies, publication of information on breaches of policy, support to the Indonesian Environmental Impact Management Agency (BAPEDAL) and information for medium term land-use mapping. There was recognition that effort on the ground was needed involving local communities. Strengthened preparedness was also identified as needed and perhaps involvement of the military and forest police. Notably the experts identified the usefulness of recognising and publicising fire management successes.

Discussion of the experts noted that with respect to Indonesia there were appropriate organisational structures already available to support efforts to respond to the fire emergency at international level (UN), regional level (ASEAN), national level (BAKORNAS PB – the National Disaster Management Coordinating Board), provincial level (SATKORLAK PB). The experts also identified the appropriate external input and expertise for each level below the national level.

From a fire management perspective the costed action plan that was developed was unrealistic and expensive (USD 9.7 million). Recent experience with international response has demonstrated that the middle level management is where resources and expertise are most often required as seen between the United States, Canada, New Zealand and Australia. The response and dispatch in each case was not an ‘emergency’ reaction but a considered response to an ongoing set of fire related circumstances. The need being filled is to supplement capacity where it is over-worked or requires resting and recuperation. The responses have not involved ground forces or equipment.

*Medium to long term programmes for responding to the “Indonesian fire emergencies”*

This meeting, held on the 21<sup>st</sup> April 1998, was co-chaired by the Executive Director of UNEP and the Chief, Disaster Response Branch of OCHA. The meeting considered:

- ❖ The establishment of a medium to long-term inter-agency programme for responding to land, bush and forest fire emergencies;
- ❖ To consider the establishment of a supportive information exchange network as well as early warning and emergency response networks and capacities and
- ❖ To agree on an action agenda for co-ordinated multi-institutional response.

During the general discussion the representatives of the many organisations made a range of points reporting existing and past activities related to fires in Indonesia and elsewhere. These were summarised at the end of the meeting and provide a wide-ranging set of ideas to address the issues of fires. There was a suggestion that another meeting would be useful to convene later in 1998, in the South East Asian region. During this evaluation it was not clear that the set of ideas or the follow-up meeting had been developed further.

### *Meeting of Donors*

Delegations from many nations attended a meeting to inform the donor community and mobilise support to the Indonesian Government to combat the extensive fires. Appropriate complementary measures were also to be considered to deal with future fire emergencies. The meeting was informed about meetings with senior officials from Indonesia, including President Soeharto, the UNDAC Mission Report and the recommendations for the Expert Workshop and the Meeting on long to medium term programmes for responding to the Indonesian Fire Emergencies.

The general discussion identified that there had been interventions of various types in the past and the lessons learnt and outcomes needed to be understood before further action was taken. The various actors also outlined interventions and efforts that had been undertaken by the various nations and agencies. The international community was concerned about the fires and noted that national authorities also need to take appropriate steps, in the case of Indonesia, this was recognised as being in respect of national policies on land clearing.

The understanding reached was a general one as to follow-up taking into account emergency assistance, the need for medium to long term measures, and response to future land, bush and forest fires.

### **Establishment of early fires warning system**

OUTCOME – Establishment of an early fires warning system, including an aerial surveillance regime for Sumatra under the Sub-Regional Fire-Fighting Arrangement (SRFA) and improvement of communications systems.

### *Activities Undertaken*

#### *Sumatra Fire Fighting Aerial Surveillance Phases I & II*

The capacity for emergency response was assumed in the project document. It seems to have been anticipated that with clear data collected and corroborated by both aerial and other means that a key aspect of fire preparedness would be actively addressed, enabling fires to be put out quickly. This was not possible since the capacity needed was not available and what existed was generally disorganised. Additionally, the cost of aerial surveillance was very high and despite the preparation of a standard operating procedure for carrying out fire spotting and confirming satellite data there resources did not exist to continue the work. To date there has not been a repeat of aerial surveillance although some flights are conducted for investigation and assessment, not only for fires but other aspects of land use and management.

The process of setting up and conducting the aerial surveillance was well managed and documented. There are some interesting conclusions and insights that arise from the work undertaken. Central among them is the information that 82% of hotspots were confirmed as fires and some fires did not appear as hotspots.

The stimulation for the Immediate Action Plan (IAP) came directly from the Aerial Surveillance trials. Recognition was rapidly made of the strong need for capacity building in technical, organisational and planning skills at the local and district levels where information from aerial surveillance or other forms of detection had to be processed and acted upon. This recognition also led to the development of Standard Operating Procedures (SOP) and the related Governor's Decree, and the pilot of Independent Community Groups trials at Rasau Jaya, West Kalimantan. It was also one reason for the GIS Database to be created and provide the base information needed at the local level. These subsequent activities were developed as part of the project.

There was a difficulty with the release of funds for the aerial surveillance activity. The ADB RETA underwrote the initial phase and the aircraft hirer for up to six months carried some costs.

#### *Establishment of a GIS Database for Sumatra, Kalimantan and Malaysia*

The GIS database was the initial step in establishing an Early Warning System for fires in Southeast Asia. The database has 11 thematic layers that provide the basic data that supports the further development of the approach to underpin management planning and early warning for fires. The database was completed in August 2002 delayed from the scheduled date of December 2001. The Indonesian National Institute of Aeronautics and Space (LAPAN) and the Malaysian Centre for Remote Sensing (MACRES) carried out the work with data and format verification and assistance from UNEP RRC.AP.

The activity was significantly delayed from the scheduled completion. In part this is explained by the time taken for the GIS layers to be prepared, verified and distributed being extended due to:

- ❖ Relatively slow response in preparing and providing data by the agency contracted for Indonesia in particular (LAPAN). Notably as a result of:
  - Extending the database to 11 layers
  - The need to update some maps (some were not available digitally and had to be prepared).
  - The need to edge-match and “clean” maps of different qualities and scales
  - The need to update some thematic layers
- ❖ The necessity for UNEP RRC.AP to verify the data formats and ensure compatibility.
- ❖ It proved difficult to coordinate between two countries, with two systems and at that time no common basis. This resulted in the two agencies working directly with UNEP RRC.AP in the latter stages of the work.

It was noted that with respect to the data supplied by LAPAN from Indonesia UNEP undertook considerable work to ensure the data provided was of suitable quality.

The data incorporated was for the years up to 2001 and before, as early as 1995, and it may need updating in due course to some extent. The scale used was 1:250,000 which is not an appropriate one for detailed planning or locating fires on the ground but has already provided a suitable basis for conducting some further analysis and additional work. Among the analysis to date has been the identification of hotspots against land use, resources, infrastructure and other key characteristics held in the thematic layers. Suitable scales for the evolution of the database were suggested as 1:100,000 or 1:50,000.

Notably in Indonesia, LAPAN is not licensed to distribute maps, which is the role of the BAKORSURTANAL, the Agency for Mapping. It was suggested that this agency did not have the capacity to print and distribute maps, which are an essential pre-requisite for planning, management and operations for fires.

The proposal for a comprehensive early warning system, to be further developed at a workshop in Jakarta in late September 2003, has arisen directly from the GIS Database development. The experience of preparing, considering and applying the thematic layers has led to the evolution of a concept to coherently consider fire in the landscape and provide a balanced assessment of the areas at risk and the consequence of fire events.

The effort to prepare the GIS also meant that significant capacity was built in MACRES and LAPAN with respect to the technical aspects and application of the GIS database. The GIS database has been reviewed for use and used by various actors including MACRES, the GTZ Integrated Forest Fire Management Project in East Kalimantan and the European Commission funded South Sumatran Forest Fire Management Project. The effort to develop the GIS database also highlighted that for it to be effective and useful at management or operational levels the scale of the data needed to be higher resolution and additional information layers might be appropriate. There remains the need for training to establish familiarity with the GIS product and its use. The change in focus to application of the database has led to a draft proposal and workshop for developing an early warning system for fires, with participation by Brunei, Indonesia, Malaysia and Singapore as well as ASEAN and UNEP.

The EC South Sumatra Forest Fire Management Project is evaluating the GIS product from this UNEP/GEF for use in its project activities.

MACRES with others have developed a concept for a comprehensive early warning system with an emphasis on prevention and predictions based on threat. The intention is to identify fire prone land and recognition that most fire causes are related to land development. This concept has arisen logically as the next step from efforts to develop a GIS Database.

That work assisted in a number of ways:

- ❖ The connections established through the GIS development enabled work on this concept to be based on clearer understanding and awareness of the different perspectives.
- ❖ The technical competence developed during the GIS database
- ❖ The thinking evolved on the topics of appropriate layers of information, the interaction between them and the linkage of different information in ways that are productive and useful for fire management.

### *Early Warning System for Fires*

As of September 2003 the objective to establish an Early Warning System had not been met by the UNEP/GIS project. There are some circumstances that contributed to this.

- ❖ The activity is very generally identified in the project document and assumed local capacity to assess fire risk. This was not present and could not be developed in the time available with the resources at hand.
- ❖ The Aerial Surveillance work identified some key aspects that made Early Warning difficult:
  - Communication of basic data and information to the local level was difficult, often impossible, and slow
  - Capacity to act on the data received was at best patchy and often non-existent
- ❖ Prior to the completion of the GIS database development the Canadian International Development Agency (CIDA) had initiated a Southeast Asia Fire Danger Rating Project (SEAFDRS) that was designed to create an early warning system at regional level with pilot sites in Indonesia. Consequently the early warning system was initiated also through ASEAN and considered the information and data provided by the UNEP/GEF in its development.

A workshop to prepare a proposal for pilot activities as a follow-up to the GIS Database Project was held on September 17-19 2003, using residual funds from the UNEP GEF Project and including representatives from the UNEP Regional Office. This workshop has been confirmed by the ASEAN Secretariat as successful and the output from it is expected to be the basis for a regional effort on developing a comprehensive regional early warning system to support the implementation of the ASEAN agreement on Transboundary Haze Pollution for ASEAN member countries. This initiative, arising from the effort to develop the GIS database with UNEP/GEF support, will be supported through the combined ASEAN resources and efforts although funding is not secured at present.

### *Video Conferencing for the ASEAN Secretariat and SRFA Member Countries*

Video Conferencing, a component developed under the early warning aspect of the of the UNEP/GEF project, has proven very useful although at present its use remains low and restricted mainly to emergency needs. The upgraded installation will be complete when the Singapore Ministry of Environment building re-wiring is completed after building renovations. This will also mean that Brunei can participate, not previously possible since there is no telecommunications agreement between an Indonesian company and one in Brunei. There may still be some technical aspects that are difficult to overcome, line quality and availability has been one aspect from time to time. .

The benefits of the approach were clearly identified as adding value to communications, particularly the rapid exchange of information, and reducing the need to meet physically with its associated financial and time costs. The use of the video-conferencing is not yet routine and well understood among the nations. Other parties have used the equipment from time to time (World Bank and the Australian Economic Development Programme for example along with other ASEAN Secretariat sections).

The costs are not prohibitive at IDR 450,000 per month for lines and IDR 3,000,000 per hour for usage. The intention is to begin to use the resource on a more regular basis to improve familiarity and effective use of the facility. This will ensure smooth operation and effective communication when critical situations demand it.

### **Training and capacity building**

OUTCOME - Training and capacity building for the implementation of a strategy for fighting and preventing fires.

#### ***Activities Undertaken***

##### *Subregional (Borneo) Training workshop of Trainers in Forest Fire Fighting*

This training workshop was run in October 1999. The course was conceived as an instructor's course in fire fighting and management to be conducted over two weeks intended as a hands on simulation exercise by the provider (New South Wales Rural Fire Service from a province of Australia). For reasons that are not clear the workshop duration was reduced to three days only. This had a negative effect on the training quality and outcomes compared to what might have been achieved under the original concept.

There was also significant reduction in impact arising from an inappropriate mix of staff sent to attend by the agencies and governments of the region. Some attendees expected to learn fire management; others to learn how to train in fire management and still others advanced fire management. The attendees were from different levels of their respective organisations and this created a range of tensions and difficulties to be managed. The expectation and the range of participants necessitated the course being adapted and altered from the original intent. The material covered was appropriate and consisted of core information and technical understanding for fire fighting. It is not clear from the report that the participants were properly trained to train, nor if upon return to their home nations training courses were presented by the participants. In most cases the participants did not hold training responsibilities or positions. This activity was not as useful or productive as it could have been had there been better selection of participants and more balanced training design.

One of the most effective ways to build capacity is generally considered to be to train trainers in the field of interest and for those trainers to then provide capacity building through training and development in their home agencies and nations. This approach provides both adaptation to national context and training delivery by locally aware and experienced trainers. The concept is appropriate and in the absence of a regional training centre for fire management or a mechanism for regular and frequent interaction among fire management staff from agencies and nations the best option available. It harnesses the value of interaction between technical and management staff around the issues of fire management and takes advantage of gathering together people with similar roles and levels in their institutions. Due to the reduction in time as against the preferred course length and the selection of some inappropriate staff to attend the benefits of this approach were not realised.



### *Immediate Action Plan Development and Field Training Exercise Sumatra*

The IAP was felt to have been well implemented with prevention messages being put out through the media, cassettes, a brochure with fire information for shifting cultivators, local people and the private sector and prevention messages on radio and posters. The materials were also distributed to five other provinces that were fire prone; North Sumatra, Jambi, Lampung, West and Central Kalimantan. This was identified as one of the first efforts to provide coordination and structure.

The activity was considered very positive since it moved the focus from fire as an “event” to fire as a result of various influences that required consistent monitoring and management. The IAP was noted as the influence that “triggered” a more measured approach to planning and review to prevent, prepare and manage fires. Prior to the IAP no standard guidelines for dealing with fires had existed.

This ignores the various plans drawn up for fires in Indonesia by a range of donors and Indonesian actors, probably reflecting the poor communication of them to a wider audience in a suitable form. The IAP also provided a basis for coordination and resource sharing making them a very useful contribution.

In South Sumatra a permanent team has been established under the Governor for forest fires with technical responsibility. There had been two organisations previously that were noted as being ‘ineffective’. The new body has been declared under a Governor’s order, which was revised in August 2002 and has been funded although it was not clear the extent, persistence or source of the support for fire management. Notably while this was the case the contact list for the IAP has not been updated (many and recent staff changes were put forward as one factor) and the responsibility to maintain the register is not clear. It was suggested the forest office has updated its own contacts.

One aspect that continues to hamper the process of implementing plans is the failure of district authorities to allocate funds to support the plan. Fires seem not to be a priority at the local level.

The training for motivators was noted as being good, however there was need for both further training and more people to be trained, for which funds would be needed.

The IAP was piloted in four districts initially with one additional district undertaking its own Immediate Action Plan after an IAP workshop district representatives attended.

The IAP was noted as a good activity that should be duplicated elsewhere in other districts but that for this funds would be required. One exercise per year was suggested as necessary.

From the perspective of the District Forestry Office (Dinas Kehutanan) the simulation exercise was quite successful although “like acting”. The priority of the District Head (Bupati) was for education and health with agriculture allocated 0.7% of the budget, which included forestry. The comment was made that it would be good if the national level “instructed” the district to allocate budgets<sup>2</sup>.

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<sup>2</sup> This is a reference to the decentralization that was initiated in January 2001 – which relocated the responsibility for management of many aspects to the District level from the central national level that had existed in the past. Under that system instructions were issued centrally from Jakarta. This is no longer the

It was felt by the forestry official that the exercise to test the IAP had been of most use to the community and the concession holder (that is the major actor in forests of the district) and not so much to the staff of the forestry office. The field (wet) test was held in the company's area where the company staff were already equipped and trained for fires, so there was a sense it was unnecessary for the company staff but would have been useful for the forestry staff. This in part reflects the emphasis of the forestry office in its operational activities, on non-fire efforts, and the lack of resources available for fire related efforts.

There did not seem to be an appreciation that the exercise was also a test of the system and its capacity as against a training exercise. The priorities of the forestry office were noted as illegal logging and timber production with fires a lower priority. The office provides advice on fires outside the company concession area "if asked" and deals with fires in conservation areas of the district mainly, although with minimal equipment. Without additional funding, from Indonesian or other sources, there has been no further activities, initiated locally or externally, building on the training exercise and the IAP.

#### *Capacity Development of the Coordination and Support Unit for the ASEAN RHAP*

##### GIS Training – Bangkok

One ASEAN officer was trained in GIS and how to improve the ASEAN Haze Action Online website during the training in Bangkok at the UNEP RRC.AP. This knowledge and skills were later imparted to the other members of CSU.

##### Peatland Seminar, Narathiwat

This seminar was held in Thailand in April 2003, attended by technical experts and representatives from government, non-government, research and international organisations. Peat and its management are a major issue for fire, biodiversity and long-term impacts. The opportunity for ASEAN CSU staff to attend was supported by the UNEP GEF project. The seminar exposed the participants to the exchange of information, which was focused on best practices for the wise and sustainable use of peat lands and enhancing local community participation in their conservation and use.

##### 3<sup>rd</sup> International Wildland Fire Conference

This international conference is the major fire meeting held worldwide. In October 2003 over 1000 participants from around the world (40 countries) attend to exchange views, share latest insights and new developments in fire management. The opportunity for ASEAN CSU staff to attend was supported by the UNEP GEF project.

##### Training on the Regional Fire Danger Rating System

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case and many institutions and agencies are still working to understand their changed roles under decentralization.

With the collaboration of the ASEAN CSU the CIDA South East Asia Fire Danger Rating System Project held training on the Regional Fire and Smoke Danger Rating System. The training was for four staff of ASEAN and two fire officers from the Indonesian Ministry of Environment. The training covered the basic concepts of fire science, fire behaviour, and Fire Danger Rating System operations and outputs. Support was provided from the UNEP GEF through the ASEAN Secretariat to organise the training for representatives of member countries to attend.

#### *Training Course for Investigators and Prosecutors*

In the period since the first of the very large fires in Indonesia in 1982/83 there has been only one successfully conviction for a fire related offence. Recognising the need for developing a course to build capacity in enforcement the first training course for Investigators and Prosecutors was held, supported through the UNEP/GEF project, organised by the ASEAN Secretariat and hosted by the Government of Malaysia. This course was run at the Environmental Institute of Malaysia (EiMAS) and was prepared and presented by experts in law, investigation and prosecution from Malaysia. Indonesia sent representatives from North Sumatra, Riau, West Kalimantan, the BAPEDAL and Ministry of Forestry. The content of the course was heavily influenced by Malaysian experience and legislation. This meant it was felt to be less useful and directly applicable to the Indonesian representatives although some aspects were worthwhile. For example the enforcement processes in Indonesia vary from those in Malaysia and there is merit in preparing and conducting a course in Indonesia using local material and instructors.

An attendee from the police force from West Kalimantan noted that his report on the training had been presented to the head of the police force in April 2003. The question had been asked as to what should happen next. There was no clear next step for this activity in the Indonesian context although the need to clearly document steps in the prosecution process, gathering effective evidence and preparing the case for court are needed<sup>3</sup> as a basis for developing a training course for Indonesian agencies and staff.

There are specific technical activities for fire investigation and analysis that are applicable to all fire investigation courses that are generic and could be used in any national context. In this course it seems there were no such technical elements prepared and delivered.

There was no reported improvement or application of the information and skills from the course being applied. This is not surprising considering that the content was not directly applicable, the systems differ, only nine were trained for Indonesia and it has been only twelve months since the training.

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<sup>3</sup> The single successful case of prosecution in Indonesia is documented in: Convicting forest and land fire offences: A case study of the legal process in Riau, Indonesia. Project FireFight South East Asia 2003.

### *Establishment of Independent Community Groups at Village Level*

Under the decentralization regime instituted in Indonesia in January 2001 responsibility for fires is now much more strongly placed at the local level. It has been recognised that fires are best managed where they start, at the local level, wherever possible. The Aerial Surveillance, IAP and SOP then led to the next engagement required, the people at community, village and household level. Public awareness of fires is generally low in the countries of the region and this needs to be raised.

Over 30% of the province of West Kalimantan is peatlands with the lowland peat forests being degraded through land-use change to large-scale commercial agriculture, population pressure and urban expansion. This activity under the UNEP/GEF project administered by ASEAN was to be implemented by a local NGO and carried out by local people.

Accordingly it was identified that a pilot of establishing an independent community group would be undertaken in a critical area. The two locations selected were Rasau Jaya Umum and Rasau Jaya III Village. The Rasau Jaya area is on peat soils and close to the airport for Pontianak the provincial capital. The smoke creates both a health and safety hazard for the local people as well as disruptions to air traffic along with the impacts across national boundaries.

The intention of the pilot was to establish community groups at village level to prevent and control land fires. There were some significant constraints on the implementation. The NGO had to be 'local' and most were not involved or interested in fire, so the selection process was protracted. There were many NGOs but selection of one was difficult with a preference that the NGO be involved in an area of work related to environment, registered with government, within the location of the community so that efforts undertaken would persist over time. A steering committee including provincial officials was set up to monitor the activity.

The steps taken by the NGO and Community included:

- ❖ Meetings to identify the objectives and "socialise" the work
- ❖ Recording the methods already used by the community for "opening" land
- ❖ Provision of extension information on how to contain fires
- ❖ Planning and advice on alternative crops, planting types and crop needs

One reason for using fire is the acidic nature of peat soils. To balance this the alkaline ash is needed in the absence of the capacity to purchase fertilisers to balance the soil pH. There are also quite large-scale experiments in the province using sea mud on peat soils to achieve the same effect without using fire and ash. There are potential crops that can grow without the need to re-balance the soil pH but in most cases there is a need for either capital to enable the community to adopt alternative crops or financial support to replace annual and seasonal income foregone while new crops mature for market.

The evaluation visited the village to review activities and progress. This activity has been very successful. Enthusiasm and comprehension among the people met during the visit was evident and appeared heartfelt, one farmer had his own secret method of improving the fertility of the peat soils for growing aloe verae, a potential key crop for improving the circumstances of local people and reducing the use of fire in agricultural practices.

The two methods used to control fire were effectively socialised, with awareness raised and monitoring and implementation put in place.

Firstly the approach to current fire use and management techniques was documented. Two fire teams of 30 people each were set up to raise awareness, monitor and implement change. Since then three additional teams have been formed spontaneously by the community.

The Kepala Dinas (village head) has created a Surat Keputusan (SK - decree) of rules on fire requiring

- ❖ Advice to neighbours of burning
- ❖ Rules for burning
- ❖ Compensation for damage due to fire
- ❖ Penalties for fires that escape management

Additionally the village schoolmaster is preparing a course for school children aged 9-12 on fire management. The community is strongly aware of the international implications of fire use and are seeking alternative crops that do not require fire (a soil nutrition issue). They are also looking for a way to “burn once” or not burn, difficult without capital or other funds. They are also seeking support for the management of Lahan Tidur – “sleeping land” that has no clear ownership and over which no management is exercised. This community as a result of the additional focus and clarity developed by the work undertaken through this activity is also putting pressure on agency and provincial officials to assist and support the search for alternatives and solutions.

This effort now has support indirectly via the Governor’s priority to focus on fires around the airport which impact on transport and aircraft safety. There is a campaign being run to raise awareness of fires and their effects, known as the “sterilisation of the Supadio area from burning”. There will be a dialogue with five Kabupaten to extend the efforts to Ketapang, Sintang, Sangau, Ladaq and Pontianak on October 16<sup>th</sup> 2003. This dialogue will be two-way with the community including requests not to burn, a search for alternatives to fire use or better management of fire use and the needs and wants of the communities.

There was a workshop with all the districts and sub-districts present. The interest and enthusiasm was high. Officials noted that across the area the socio-economic conditions and circumstances are similar so extending the efforts and findings more widely should be straightforward. Some traditional methods have been changing but this activity has confirmed that old ways were more effective and have been re-invigorated by this activity.

The uncontrolled burning that continues is usually taking place on land that was not clearly “owned” or under specific management, known as “lahan tidur”.

The English version of the report that is currently available contains some excellent descriptive and diagrammatic information that is valuable and should be prepared for wider distribution. At present the English requires significant improvement and heavy editing to improve its clarity and usefulness as an example of initiative and community based fire management (CBFiM).

Many of the contacts made reinforced the need to make effective engagement at the local level and build a consensus on fire management. The nature of fires means that there has to be significant investment of time, energy and resources in villages, communities and households to strengthen the capacity to change and create opportunities for improving fire management.

#### *Development of Guidelines for the Implementation of the Policy on Zero Burning*

These guidelines were developed under the lead of Malaysia and in general apply to second rotation (re-establishment of a crop after the previous crop is harvested or has completed its economic-cycle). They have been prepared, reviewed and published by the ASEAN Secretariat. The guidelines are intended as a reference guide for the member countries in promoting zero burning practices and were developed to document good zero burning practices that are already implemented in certain parts of the region. They are intended to provide guidance for the member countries in seeking best solutions to problems arising from open burning. The application of the guidelines will depend on circumstances in each country and some adjustments maybe needed based on the circumstances of each country.

In discussion it was noted that the guidelines contained little information on the practices best applied to conversion of secondary or logged forest to plantation to other uses without fire. For the Indonesian context this is problematic where a significant amount of land clearing is still being undertaken and planned. In the Borneo provinces of Malaysia this is also the case.

#### *Development of Guidelines for the Implementation of the Controlled Burning Practices*

The consultant has prepared a draft of the guidelines, which is currently being reviewed by members of the ASEAN committees and experts. Once finalised it will also be printed and distributed before the end of the year.

Indonesian Regulation No. 4/2001 is set out to regulate the use of fires and bans fire use. There is a shortcoming since the regulation doesn't accommodate the non-commercial burning, or rotational burning, that is conducted by people to sustain livelihoods. This needs to be allowed but also regulated. The guidelines are intended to provide guidance, technical information and basic understanding to support effective and efficient fire use where it is necessary for the smallholders and subsistence. <sup>4</sup>

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<sup>4</sup> This approach, evolved through the UNEP/GEF funded and ASEAN processes in collaboration with other stakeholders, has strong potential as a model for consideration by other nations in the region with a similar legal ban but a social reality of fire – perhaps very useful for Thailand, Vietnam and Philippines.

The intention of preparing these guidelines is both to recognise the need, and the lack of alternatives, for some segments of society to use fire in annual cycles that sustain their livelihoods and to provide guidance in those situations where fire is used such that it is used as effectively as possible and ‘managed’. It was recognised by contacts at all levels that the guidelines needed to be communicated and understood across the range of stakeholders to optimise the benefit of the collected understanding it is intended they contain.

The local level is a logical point for both prevention and management of fires to be instigated and invigorated for not only Indonesia but also all nations in the region.

#### *Southeast Asia Fire and Haze Information Centre*

One logical need that is to be met if the exchange of information is to be streamlined and improved is the development of an “information-clearing house”. This concept has been under consideration for some time and is an integral part of the ASEAN Agreement on Transboundary Haze Pollution. Support from the UNEP GEF project, savings as a result of efficiencies elsewhere in the implementation, are to be used to further develop this concept for South East Asia and initiate a test of a possible web-based platform for the information centre.

#### **Public awareness and dissemination**

OUTCOME - Public awareness and dissemination of the lessons learned so that other GEF recipient countries confronted with similar environmental threats, such as the recent outbreak of forest fires in the Amazon, can be benefited.

#### *Activities Undertaken*

There do not appear to have been any activities undertaken to directly support public awareness and dissemination of lessons learned. While there was not a specific activity on public awareness, the projects, such as the IAP Phase 1 and the community-based project in West Kalimantan, did include components of public awareness activities at the local levels. The ASEAN Haze Action Online is also a public awareness activity, at the national and regional levels, and the GEF/ UNEP project has contributed to improving the content and display of the website through the capacity development programme for the ASEAN Coordination and Support Unit. A number of products such as posters, radio campaign materials and leaflets were produced during the IAP project. Upon the completion of the IAP project, designs and themes for the posters, have been replicated by the Indonesian government (Ministry of Environment), produced in other forms of materials for public awareness and continue to be used.

The potential for suitable materials to be produced, that support the public awareness and dissemination of the lessons learned to other GEF recipient countries is very high. Much of the work done, and reported, under the activities of the project contains significant ideas, examples and insights that would provide significant benefit to nations, agencies, NGOs and communities working to address fire and its management.

It is not clear why there were no specific activities undertaken relating to public awareness and dissemination. It was indicated that the allocation (USD50,000) that was originally intended to fund public awareness component was re-allocated by UNEP to funding the IAP Phase 1. The activities undertaken in the region were focused at the local, national and regional levels and were technical or capacity building in nature. The role for preparing and publishing materials and other products to raise public awareness was not allocated in the project document, perhaps a reflection of the speed with which this project was conceived, designed and funded.

## Project Administration & Management

The financial and administrative management of the project has been undertaken under the systems and processes of UNEP and of ASEAN. It has been carefully administered in terms of finances, as far as can be ascertained, and the formal processes of Memoranda of Understanding and contracts. There has possibly been loss of clarity about arrangements and requirements as a result of up to five layers in project administration: GEF – UNEP Nairobi – UNEP Bangkok – ASEAN Jakarta – Implementation Agency Kuala Lumpur, Riau, Jambi, South Sumatra, West Kalimantan. The financial control remained with the UNEP office in Nairobi. There appears to have been no point at which there was a clear communication as to the funds available, the project objectives and outputs to the ASEAN meetings. This was reflected in the general lack of awareness of the source of funding and the project design identified by the GEF In-depth review conducted in January 2001 (for another GEF wide purpose not as an evaluation of this project per se).

One of the contributing factors that may have created most confusion and less clear leadership than would have been ideal has been the change in task manager for the project (see Annex 2 – Project Timeline). As the project was medium sized it is understood that UNEP did not set up a Project Management Unit for it. This situation appears to have been unique to this project. The absence of a project management unit may be the result of the speed of project design and implementation, arising from the emergency nature of the fire issue at the time.

There have been perhaps five different task managers in three locations (Geneva, Nairobi & Bangkok) during the project. The transition from one to the next, and the clear communication of the project outcomes and planned activities including the status of them, appears not to have been effectively made in all cases. As a result continuity was lacking in the early stages of the project. Additionally until a staff member at RRC.AP began to support the management by UNEP of the GEF funded project (March 2001) it seems a senior member of staff at Director level was the only person managing the content and technical aspects and providing supervision to the main implementing agency ASEAN. This support appears to have been required prior to the time this was provided for the project to be effectively supervised and managed. The lack of continuity in both task manager and support is a factor in the confusion expressed about the identity of the source of funds, GEF, the objectives of the project and the administration of the process.

The Task Manager since March 1999, Director of the RRC-AP has regularly attended the ASEAN meetings and in particular the Haze Technical Task Force Meetings where the ideas and activities generated could be assessed for support by this GEF funded project.



This approach has meant that there was significant engagement by regional government stakeholders and enthusiasm for activities since they had been proposed and were implemented by the actors in the region most effected and involved, who stood to benefit most strongly. This relationship-based approach was well received by the stakeholders and noted often during the evaluation as an important attribute of the UNEP GEF project. The flexibility available to provide support to activities that met identified needs was greatly appreciated.

Meetings at this level also provided some consistency between donors that, in part, assisted efforts to ensure that duplication was taken advantage of where it was useful and overlap avoided if it was not. While this aspect requires further cooperation and collaboration between the donors, one example of this is the decision not to proceed at the time with the early warning system under the UNEP GEF project. The preparation of the GIS database had taken significantly more time than anticipated and a number of contributions and efforts towards a fire danger rating system had evolved. Notably the Canadian Government had funded a Regional South East Asia fire Danger Rating Project that has used the input and efforts from the UNEP GEF project and others to progress the concept of an early warning and fire danger rating system.

Using the existing, and evolving, mechanisms under the ASEAN umbrella also meant that the project management for activities approved had the full force of the ASEAN system applied to them. Reports were required on progress by the SRFA, the HTTF and the AMMH and in general the activities were well conducted and met their objectives and timing. The formats, style, content and timing of reports required was not clearly understood throughout the administration and management chain.

This meant that from time to time additional input had to be sought to complete reports required rather than various types of reports enabling consolidated reporting as required. It is likely this is the result of weak shared understanding of where the project originated and its role and focus which appears to be the result of communication and management elements not of individuals.

The day-to-day management became the responsibility of a programmes specialist at the Regional Resource Centre for Asia and the Pacific (RRC.AP) in March 2001, under the management of the Director of the UNEP RRC-AP. The records of correspondence and reports even after that time remain incomplete at the UNEP RRC.AP office. The nominated officer prepared Project implementation Reviews (PIR) for the project without having any guidelines or in-depth knowledge of the project. This aspect was also complicated by the slow response reported at times of the ASEAN Secretariat to requests for documents, correspondence and reports. This is most clearly reflected in the gaps between provision of regular progress reports in 2000 and 2001 but has not been the case in the latter stages of the project.

Initial cooperation at ASEAN was between the ADB RETA and its staff and UNEP. The Coordination and Support Unit (CSU) to the Regional Haze Action Plan (RHAP) assumed the role of conduit for activities and administration in October 1999 and reported on the work from then on.

The set of records (reports, correspondence and reports of activities) for ASEAN supported activities held at the ASEAN Secretariat appears to be complete, including the materials and reports prepared under the RETA, in large part due to the continuity provided by the involvement during the entire period of the Technical Officer, Project Officer/Assistant Project Manager for the RETA, who later became Senior Officer, Haze Environment Unit Bureau of Economic and Functional Cooperation in the fire related activities and support carried out by ASEAN, including this UNEP GEF project. Upon completion of the ADB RETA, funding for this ASEAN position was continued by UNEP/GEF providing support to CSU to ensure continuity of work to early 2001. It may be the case that not all the documentation has been communicated comprehensively to the UNEP RRC.AP where copies of all reports were not available. These may also have been passed on to UNEP Head Office. There was no opportunity to review the documentation held by UNEP in Nairobi or Geneva at the UNEP/OCHA office. The opportunity to physically review non-electronic material in Bangkok and Jakarta proved very useful but was not possible for material held in Nairobi.

While the implementation has, in the final analysis, provided some effective interventions the project has exceeded the intended timeframe of approximately one year. The main explanation for this delay has been the many and various delays, for a range of reasons, that were experienced by the sub-components of the UNEP/GEF Project. Particular among these was the time taken for the development of a GIS Database for Sumatra, Kalimantan and Malaysia which was delayed by both process and the need for technical review and improvement (see relevant section) and the evolution and changes in the setting up of the Video-conferencing facilities. The project management of these activities should have been stronger.

The GEF funded portion of the project was USD750, 000. Overall the summary of accounts provided by ASEAN to UNEP RRC.AP for the period up until April 2003 indicates USD 431,600 in UNEP GEF funds was allocated to this project. Expenditure and commitment from these funds up to April 2003 is USD 383,518.63 leaving a residual of USD 37,961.37. ASEAN has proposed activities to utilise the residual funds provided to them that, as a result, will be expended before the end of 2003. These costs do not include the cost for Video-Conferencing Equipment supplied to ASEAN Secretariat and Member Nations (Brunei, Indonesia, Malaysia and Singapore), which were funded through UNEP. There were costs for holding the meetings in Geneva in April 1998 and no doubt others incurred by UNEP in Geneva, Nairobi or Bangkok but it is not possible based on the information available to date to identify the final disbursement of the GEF funds of USD 750,000 nor account for the in-kind contributions of UNEP. The terminal report, which should contain this detail, will be finalised when the funds are fully spent at the end of 2003. To the credit of all involved the funds provided have been very effectively used allowing savings to be made and applied to further efforts, many of which built on the initial activities and concepts to develop them further, in some cases contributing strongly to continuity and sustainability. This investment of less than one million US dollars has provided significant contributions to the understanding and addressing of fire related issues and problems in Indonesia and South East Asia.

## Rating of Project Implementation

The distillation to a score of the implementation of a project that was framed and initiated as an emergency response to a high profile event and issue at the time not clearly understood is indicative but not ideal. The concept has some merit in terms of allowing a set of rankings to be considered when assessing programmes of work or comparing across efforts undertaken in different themes, sections or sectors. If the qualitative basis for applying numbers to the various aspects that are assessed is not recognised as such there may be a risk that discussion of additional work or investment in a geographic location or on a theme may rest not on comprehension but on numbers that do not inherently contain the explanation of the project benefits, strengths and areas for improvement. With this view in mind the project has been evaluated and a score of 3 is provided, recognising that there is a range of performance inherent in this overall rating.

Item	Comment	Score
Attainment of objectives and planned results	Unrealistic objectives due to inadequate project design	5
Attainment of outputs and activities	Not all outputs achieved, many useful activities undertaken.	3
Cost-Effectiveness	Outstanding efficiency with very low expenditure and significant savings enabling further activities	1
Impact	Strong base provided for evolving and ongoing impact	3
Sustainability	Next steps initiated by stakeholders spontaneously and institutions engaged provide a strong foundation for the outcomes to be applied, improved and ongoing. This will be subject to the allocation of sufficient resources to support continuing efforts and evolution.	2
Stakeholders participation	Stakeholders from local to regional level to global levels participated in the project. There are strong examples at each level of effective participation, particularly at the ASEAN regional level.	3
Country Ownership	The project was focused mainly on Indonesia with other nations being involved in activities as appropriate. Due to factors and influences that have nothing to do with the project (governance, bureaucratic capacity, resource availability, a range of other significant priorities – health, trade, education) Indonesia could improve its ownership of the fire issue and the project outcomes.	4
Implementation approach	At regional level the mechanism of using the ASEAN committees to frame and oversight activities has worked extremely well and should be continued. This generates a positive rating although project management should have been a stronger focus.	2
Financial Planning	The funds were well managed and recorded at regional level.	3
Replicability	Many aspects of this project can be, and should be, repeated (IAP, SOP, Training, FSMP, CBFiM pilot, West Kalimantan).	3
Monitoring and Evaluation		3

## **Lessons learned**

### **The General Case**

A critical contributor to clarity for future fire related projects is the effort put in to clearly define the “fire problem” that is to be the focus of efforts.

The fire “problem” is more complex and options for solutions less clear than initially understood by most actors involved in South East Asia’s fires. The needs and effective solutions will take a considered, consistent and protracted engagement by the parties involved – UN agencies, donors, government agencies, provincial officials, NGOs and communities. This is increasingly recognised, however the means to frame and encourage the levels of engagement, investment and commitment required are yet to emerge.

Project management needs to be improved and more consistent with clearer communication. However, using the regional mechanisms under ASEAN proved to be effective and efficient. This approach has significant merit as a model for continued effort in South East Asia as well as elsewhere.

During the wide range of activities undertaken through this UNEP/GEF Project there has been engagement with many of the institutions and agencies responsible for dealing with the “haze” problem and their governments. As a result it has been possible to gain an overview of the circumstances in the region. Notably the response on the part of the region’s governments to fire has been left largely to the agencies that deal with environment. While this is relevant it is also the case that in most respects the government agencies with most influence on, and the strongest contribution to, the present situation are ministries of agriculture, forestry and development, that have land allocation or management responsibilities. The group of ASEAN Ministers dealing with the smoke and haze ‘environmental’ issue has limited opportunity to influence the more powerful Ministries of agriculture, forests and development who also meet under the ASEAN umbrella.

### **Project Intent**

The impact with respect to biodiversity and conservation objectives is an indirect one, as it was always going to be. Fires in the tropical regions are a symptom of the influences and underlying causes that are impacting on forests and lands. Addressing fires directly in a technical fashion was an approach that would only ever treat the symptom and not cure the causes. This project through testing the first step approaches to address fires (fight them) has worked through the ‘layers’ of needs and arrived at addressing the underlying causes of fire, smoke and haze. It has done this in two ways. At the field level where the progression from aerial surveillance has led ultimately to the very effective pilot work done in West Kalimantan, which, if applied more widely, will reduce the use of fire and improve the livelihoods of local people thereby potentially reducing their need to clear new areas for crops and livelihoods.

Secondly the UNEP GEF project and UNEP expertise has been engaged in the evolution of the ASEAN Agreement on Transboundary Haze Pollution – a key instrument, ratified recently, that provides the ASEAN nations with an agreed basis for collecting, providing and analysing information, support and providing coordination and collaboration across the region on inter alia fires (both wanted and unwanted).

## Design

The design of this project was quite general and did not provide significant clear guidance for activities and implementation. This was used to advantage given the strong interaction that was made with the ASEAN Haze Technical Task Force (HTTF), enabling efforts to be agreed, understood, shared and supported. In some respects the project design lacked clarity and contained unreasonable expectations. As understanding has improved it has become evident that “stopping” fires in Indonesia is not a reasonable or realistic objective. The project was approved quickly and did not undergo the rigours of project design, testing and checking that would have been desirable.

Future consideration of emergency reactions to fires should consider the added value that can be provided by a short-term intervention and the need to address the underlying causes of fires to prevent unwanted fires repeated at some future time. There may be a need to boost the capacity of disaster evaluation missions to draw the distinction between reaction to the emergency aspects and the solution to the causes and form recommendations for action appropriately categorised.

## Implementation

A consistent theme of this evaluation was that the activities had all been valuable in both direct and indirect terms. There was consequently a consistent call for additional resources (funds) to maintain the activities and repeat the efforts in other parts of Indonesia and elsewhere.

Management was not ideal. A sequence of task managers, apparently operating alone, with no administration or management support, was inadequate. These individuals also had additional duties and responsibilities at senior level complicating the task manager role. There was no project unit set up.

Additionally the Project Management through the ASEAN processes, while providing strong concepts and commitment from those involved, should have been stronger, particularly with respect to timelines and delivery of outputs. The ASEAN processes have to accommodate the opportunity for input, consensus and consideration which can extend the preferred timeframes.

## Training

For training to be effective in delivering strengthened capacity and improvements in practice, commitment and understanding; appropriate staff need to be selected and courses designed, and implemented, to meet the training objective(s).

## **Findings and Recommendations**

### **Project Design**

In the rationale used to develop this project it was assumed that fire fighting, capacity for it, structure, skills, equipment and organisation, were a key factor in the extent and persistence of the fires. Subsequently it has been established that while fire suppression capacity does indeed need improvement, the level of it is not at the root of the fire “problem”, the problem definition for this design was inadequate. A factor in part explained by the emergency nature of the response.

#### **RECOMMENDATION**

Future projects designed, response to environmental emergencies should clearly separate the short-term emergency nature of meeting immediate needs and the efforts that are required to address medium and longer-term aspects such as working to mitigate and manage underlying causes.

### **Fires in South East Asia**

As the major source of transboundary smoke and haze pollution the Republic of Indonesia has a significant responsibility that it and other ASEAN states have recognised. In the implementation of this project there is evidently a need for capacity building, including among the professional and bureaucratic staff, of agencies and institutions in Indonesia that have responsibilities for fire management or supporting activities to fire management.

For the Government of Indonesia to effectively play the role it should in addressing the local, provincial, national and regional concerns about unwanted and damaging fires a long-term and consistent investment of time, expertise and funds is required so that capability can be increased to match effectively the need to act.

This UNEP GEF Emergency Response to the fires in Indonesia has stimulated and leveraged other efforts. It provided a basis for the ASEAN Agreement on Transboundary Haze Pollution and significant support to the Regional Haze Action Plan, the Immediate Action Plans and other key pilot activities.

#### **RECOMMENDATION:**

1. Specifically the Government of Indonesia should: Nominate a lead agency for the management of forest and land fires. Resource that agency to undertake the lead in fire management.
2. Make clear the responsibilities and functions of each of the agencies that have a role in fire management in Indonesia. Resource those agencies in a way that ensures they can meet their responsibilities and perform those functions.
3. Clarify the accountability and responsibility at the three levels of government – National, Provincial and District.

4. Enable local communities to participate in the management of fire in their local area and support them when the limits of their capacity are reached (mainly in fire fighting).
5. Harmonise fire management laws.

Donors, technical experts, NGOs and other stakeholders should:

1. Support the Indonesian Government, its agencies and communities to undertake the above.

### Co-ordination of all existing efforts

As a general comment the lead that was initially taken by UNEP on behalf of the UN system does not seem to have been sustained. The initial pulse of activity in Geneva does not appear to have generated an ongoing effort by UNEP on fires at the global level and it appears the outcomes of the meetings held in Geneva, if still appropriate, remain to be carried forward. Within South East Asia there has been an ongoing involvement under the UNEP GEF project that has seen UNEP active in fire issues and aspects for the region.

There remains a need for international level interaction and focus on fires to be coherent. The recent International Wildland Fire Conference held in Sydney, Australia has recognised this and delegates are attempting to work collectively to raise the issue and work towards improvement through a series of regional consultations and events in the medium to longer term.

### RECOMMENDATION

UNEP to review the efforts on fire management that are extant under the UN system (OCHA, INDR Working Groups, and others) for consideration of its future role and ensuring effectiveness of the role in fire related issues.

### Implementation

The approach of utilising the strengths and processes under the ASEAN umbrella has generated strong achievement of due process and efficiencies in undertaking activities. This has also meant that the stakeholders and fora under ASEAN had both strong input to the identification and undertaking of activities and strong commitment to the activities. The project management requires strengthening for the advantages inherent in this approach to be fully utilised.

### RECOMMENDATION

The approach of engaging with issues at regional level through the ASEAN should be continued and possibly expanded as appropriate with an increased emphasis on clear and accountable project management.

## Project Products

The project insights could be clearly and simply presented to a dissemination meeting, of decision makers in Indonesia, perhaps associated with a HTTF or SRFA meeting. This presentation should be based strongly on the positive aspects, the lessons learned, areas needing improvement and interesting aspects as determined by various project reports and this evaluation.

### RECOMMENDATION:

Project reports, reviewed, summarized, edited and re-written for a general audience, should be published to emphasise the insights and experience obtained. The activities undertaken have established some very useful and key information that is not widely known. Two examples are provided below to illustrate the potential for the public awareness and dissemination of the lessons learned, identified in the project document but not yet met, so that other GEF recipient countries confronted with similar environmental threats can benefit from the understanding developed.

#### ❖ Example 1

##### ➤ Aerial surveillance:

- That the satellite imagery is up to 80% accurate
- Getting the information to the field takes up to X days
- There is some value in the use of aircraft, though expensive, but no benefit if they are not supporting an effective, resourced and well managed ground force.

#### ❖ Example 2:

- The approach being developed in Indonesia, and the legislation already in place in Malaysia, that enables but regulates the use of fire by non-commercial local people represents a possible approach for other countries in the region to consider, particularly Thailand where uncontrolled fire use, illegal by law, is the major cause of fires.

## Training

### RECOMMENDATION:

The staff selected to attend training should be chosen based on clear criteria related to the content and the objectives of the training.

Training should be designed, and implemented, to meet training objective(s) relevant and appropriate for the agency, nation and region.



## Annex 1 – Project Timeline

<b>Year</b>	<b>Month</b>	<b>Event</b>	<b>Project</b>	<b>People</b>
<b>1997</b>	Jan			
	Feb			
	Mar			
	April			
	May	<i>Indonesian Fires, smoke and haze in South East Asia</i>		
	June	<i>Indonesian Fires, smoke and haze in South East Asia</i>		
	July	<i>Indonesian Fires, smoke and haze in South East Asia</i>		
	Sep	<i>Indonesian Fires, smoke and haze in South East Asia</i>		
	Oct	<i>Indonesian Fires, smoke and haze in South East Asia</i>		
	Nov	<i>Indonesian Fires, smoke and haze in South East Asia</i>		
	Dec			

Year	Month	Event	Project	People
1998	Jan			
	Feb			
	Mar			<i>Pak Sum Low – Task Manager - Nairobi?</i>
	April	UNEP & OCHA Meetings Geneva of: <ul style="list-style-type: none"> <li>• Fire fighters,</li> <li>• International organisations and</li> <li>• Donors</li> </ul>	UNEP GEF MSP approved by GEF Secretariat	John Edwards Task Manager – Geneva <sup>5</sup>
	May			
	June			
	July		MOU with AIT by UNEP to provide support to: Aerial Surveillance pilot project and Develop concept paper for Indonesia  Proposal on Early Warning System and Forest Fire Hazard Mapping in Indonesia.  Project Implementation Review	UN Resident Coordinator in contact with GOI re use of resources raised  AED J.E. Illueca confirmed as Task Manager - Nairobi
	Aug	Aerial Surveillance Project Phase I (started late July)	ADB RETA takes on role of conduit for ASEAN of the UNEP/GEF Project.	
	Sep			
	Oct		Aerial Surveillance Report	
	Nov	Aerial Surveillance Project Phase II		
	Dec		MOU Aerial surveillance Phase II	

<sup>5</sup> Mr. Edwards tragically died two weeks after taking up the position

<b>Year</b>	<b>Month</b>	<b>Event</b>	<b>Project</b>	<b>People</b>
<b>1999</b>	Jan			
	Feb			
	Mar		Original Completion Date	Surendra Shrestha nominated Task Manager - Bangkok
	April			
	May			
	June		MOU Training Course for Trainers  MOU for GIS Database	
	July	IAP Scheduled from July – Oct  Video Conference Facilities received by ASEAN	MOU IAP Phase I	
	Aug	Final Reports Aerial Surveillance, Phases I & II submitted by UNEP to GEF Unit, Nairobi.		
	Sep	GIS preparatory meeting, Jakarta		
	Oct	Training Workshop for Trainers  IAP Simulation Exercise, Kampar District, Riau  GIS preparatory meeting, Bogor	UNEP approves Capacity Development Phase I	
	Nov	IAP Simulation Exercise, Musi Banyu District, S. Sumatra		
	Dec		IAP Phase I Report  ASEAN Progress Report	

<b>Year</b>	<b>Month</b>	<b>Event</b>	<b>Project</b>	<b>People</b>
<b>2000</b>	Jan	GIS database Inception Meeting, Pekanbaru	MOU on Video-Conferencing	
	Feb	GIS 1 <sup>st</sup> technical meeting, Bangkok ASEAN CSU staff training, 2 weeks, Bangkok Video-conference UNEP-ASEAN	Letter of Agreement ASEAN – LAPAN/MACRES	
	Mar	GIS 2 <sup>nd</sup> Technical Meeting, Bogor	ASEAN Progress Report	
	April			
	May			
	June	ADB RETA Final Regional Workshop		
	July			
	Aug			
	Sep			
	Oct			
	Nov			
	Dec	GIS MACRES submits database		

<b>Year</b>	<b>Month</b>	<b>Event</b>	<b>Project</b>	<b>People</b>
<b>2001</b>	Jan	GEF Review of UNEP GEF MSP Video-conferencing used in Review		
	Feb		GEF Evaluation report prepared as part of GEF biodiversity Programme Study	
	Mar			Tunnie Sithimolada takes role as coordinator UNEP-ASEAN
	April			<i>Tin Aung Moe replaces Dr Chandra Giri as contact point for EWS/GIS activity?</i>
	May			
	June			
	July			
	Aug	ASEAN proposal to use funds remaining on: <ul style="list-style-type: none"> <li>• Independent Community Groups</li> <li>• Training Course for Investigators &amp; Prosecutors</li> <li>• Capacity Development in CSU of ASEAN</li> </ul>		
	Sep			
	Oct			
	Nov			
	Dec			

<b>Year</b>	<b>Month</b>	<b>Event</b>	<b>Project</b>	<b>People</b>
<b>2002</b>	Jan		MOU Capacity Development Phase II MOU Establishment of Independent Community Group at Village Level MOU Training Course for Investigators and Prosecutors	
	Feb		MOU for using remaining funds	
	Mar		ASEAN Progress Report	
	April			
	May			
	June	Signing of ASEAN Agreement on Transboundary Haze Pollution, Kuala Lumpur	<i>ASEAN Progress Report?</i> Preparation of guidelines for Zero Burning and Controlled Burning approves (e-mail)	
	July	Training course for investigators & prosecutors, Malaysia		
	Aug			
	Sep	GIS database National Workshop, Jakarta GIS training/capacity development for CSU, Bogor Independent Community Groups at village level – Local NGO selected by Indonesia.	ASEAN Progress Report Local NGO contracted	
	Oct			
	Nov			
	Dec		ASEAN Progress Report	

Year	Month	Event	Project	People
2003	Jan			
	Feb	Guidelines on Zero Burning - completed	Certified summary of accounts provided by ASEAN	
	Mar		ASEAN Progress Report	
	April			
	May			
	June	Video-conferencing upgrading completed – Singapore waiting building re-fit		
	July	<i>National Workshop on Establishment of a GIS database scheduled for MACRES in Kuala Lumpur</i>		
	Aug		Approval for: <ul style="list-style-type: none"> <li>• Training on regional fire and smoke danger rating system</li> <li>• Participation in the 3<sup>rd</sup> International Wildland Fire Conference, Oct 2003</li> <li>• Support to development of SE Asia Fire and Haze Information Centre</li> </ul>	
	Sep	UNEP GEF MSP Project Evaluation  Final report on Independent Community Groups Kalbar.		
	Oct			
	Nov			
	Dec			

## Annex 2 – Schedule of Evaluation & List of People Met

NO	DATE AND VENUE	OFFICIALS/ PEOPLE MET
1.	1 - 3 September 2003;  UNEP RRC-AP Bangkok	Mr. Surendra Shrestha; Ms. Tunnie Sithimolada Mr Tin Aung Moe Ms. May Ann Bernadino
2.	5 September 2003  ASEAN Secretariat, Jakarta    Ministry of Environment, Jakarta	Dr. Raman Letchumanan; Ms. Adelina Kamal Ms. Vinca Safrani Ms Riena Prasiddha Ms Hidayati Rirys  Mr. Antung Deddy (confirmed)
3.	8 September 2003  Ministry of Environment, Jakarta	Dra Liana Bratasida – Deputy Minister for Environmental Conservation MoE: Mr. Hermono Sigit and staff MoF: Mr. Zulkifli Ibnu LAPAN: Mr. Muchlisin Arief
4.	9 September 2003 Palembang, South Sumatra  EC South Sumatra Forest Fire Management Project  Officials of BAPEDALDA  Visit to Muara Enim district	Mr Karl-Heinz Steinmann Mr Paul Kimmins Mr Djoko Setijono  Mr Hadenli Ugihan Mr. Hasanudin, Dinas Kehutanan: Mr. Muhono
5.	10 September 2003  Pontianak, West Kalimantan	BAPEDALDA: Mr Idrin M. Su'ud Konservasi Borneo: Mr Gusti Z. Anshari DITRESKIFIM (Police): Mr Eddy Triswoyo



NO	DATE AND VENUE	OFFICIALS/ PEOPLE MET
7.	11 September 2003  Rasau Jaya, West Kalimantan	Community leaders at Rasau Jaya: Mr. Musa, local NGO – PPRJ: Mr. Zakaria School Principal: Mr Matteus Messrs: Musa, Effendi, Yadsy and others
8.	12 September 2003;  Pontianak – Jakarta	-
9.	14 September 2003 (Sunday)  Jakarta – Kuala Lumpur, Malaysia	-
10.	15 September 2003\  Kuala Lumpur, Malaysia	Officials at MACRES: Mr Darus Ahmad Mr. Jimat Bolhassan
11.	16 September 2003  Putrajaya and Bangi, Malaysia	Officials at Department of Environment, Malaysia: Mr. Patrick Tan Ms. Pauziah, Ms. Shafizah Consultant: Mr Teoh Cheng Hai (Zero Burning) EiMAS: Zam Azuri Azizah,

### Annex 3 – List of Documents

Document Title	Type	Document Location
Indonesian Fires Volume 1, 2 & 3	Folder of correspondence, e-mails, faxes, proposals and MOUs relating to the UNEP/GEF Project	Bangkok
Documentation Volume 4	Folder of UNEP correspondence relating to Indonesian fires 1998 only	Bangkok
Documentation Volume GEF/NBO	Folder of correspondence, e-mails, faxes, proposals and MOUs relating to the UNEP/GEF Project	Bangkok
Sub-regional Training Workshop for Trainers in Forest Fire Fighting – Brunei October 1999.	Report	Bangkok
Immediate Action Plan for Riau & South Sumatra (Phase I)	Report	Bangkok
GIS Database	Second Progress Report	Bangkok
Training Course for Investigators and Prosecutors	Report	Bangkok
Aerial Surveillance Phase I	Report	Bangkok
Aerial Surveillance Phase II	Report	Bangkok
Early Warning System and Forest Fire Hazard Mapping in Indonesia	UNEP Proposal DRAFT	Bangkok

<b>Document Title</b>	<b>Type</b>	<b>Document Location</b>
Proposal for a feasibility for the establishment of an ASEAN Disaster Preparedness Centre	Proposal by Asian Disaster Preparedness Centre	Bangkok
Correspondence File – 2001 In & Out	Folder of correspondence, e-mails, faxes, proposals and MOUs relating to the UNEP/GEF Project	Bangkok
Correspondence File – 2002 In & Out	Folder of correspondence, e-mails, faxes, proposals and MOUs relating to the UNEP/GEF Project	Bangkok
ASEAN Correspondence File	Folder of correspondence, e-mails, faxes, proposals and MOUs relating to the UNEP/GEF Project	Jakarta
Establishment of Independent Community Groups at the village level	Final Report	Jakarta
Establishment of a GIS Database for Sumatera, Borneo and Malaysia (sic) Peninsula (sic)	Final Report (and progress reports of Inception Meeting and Technical Meetings)	Jakarta
Guidelines for Implementation of controlled burning practice	Draft Guideline	Jakarta
Guidelines for the implementation of the ASEAN Policy on Zero Burning	ASEAN Publication (UNEP/GEF supported)	Jakarta
Emergency Response to Combat Forest Fires in Indonesia to prevent Haze in South East Asia.	UNEP Project Documents	Sydney (by fax from UNEP Nairobi)
Relevant e-mails and correspondence	Electronic documents	Sydney (by e-mail from UNEP Nairobi)
In-depth review and Field Visit Report	GEF Review team report	Sydney (by e-mail from UNEP Nairobi)

<b>Document Title</b>	<b>Type</b>	<b>Document Location</b>
ASEAN Secretariat's Response to GEF Review	Various documents in electronic form	Sydney (by e-mail from UNEP Nairobi)
Progress Reports – Quarterly, PIR and others	Administrative reports on project activities	Bangkok, Jakarta & Sydney (by e-mail from UNEP Nairobi)
Training course for ASEAN investigators and prosecutors on open burning	Final Report	Bangkok, Jakarta, Kuala Lumpur
Training course for ASEAN investigators and prosecutors on open burning	Mission Report by ASEAN Staff	Jakarta
Seminar on Wise Use and Sustainable Mangement of Peatlands, Narathiwat, Thailand, 9-11 April 2003	Mission Report by ASEAN staff	Jakarta
HazeOnline Maintenance and Management Training	Course Materials	Jakarta
Development of early warning system for the operationalisation of total forest and land fire management plan	Draft Proposal (MACRES Malaysia)	Jakarta, Kuala Lumpur
Immediate Action Plans – South Sumatera, Riau,	Action Plan	Jakarta