



# AFTER THE RAINS START: MOVING TOWARD LONG-TERM PEAT AND FOREST FIRE PREVENTION

## 1. INTRODUCTION

2015's El Niño phase – which is ongoing – has contributed to widespread peatland and forest fires in Indonesia. The consequent haze has caused severe human, economic and environmental impacts in several countries in Southeast Asia. Air Quality Index levels for Palangkaraya have reached more than 3000, or 10 times higher than the “hazardous” threshold. There have been at least 10 deaths and over 40 million people continue to be directly impacted by the haze. Long-term impacts on human health<sup>1</sup> and peat ecosystems are likely to be severe, as are the economic losses.<sup>2</sup>

The current El Niño cycle is likely to last until the second quarter of 2016. It is remembered that in 1997 and 1998 a sudden dry spell after rains commenced had substantial impact. Experiences in Riau have shown that drier periods in normal years can lead to major fires, in particular in Sumatra, due to rapidly increasing pressure on peatlands.<sup>3</sup>

Despite significant challenges, the Government of Indonesia, with the support of the international community, has devoted significant resources to fire fighting. In addition and for effective fire prevention, long-term paradigm shifts need to be initiated, including moving toward the sustainable management of peatlands. In parallel to firefighting efforts, there is an urgent

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need now for a comprehensive national strategy and evidence-based actions at all levels of government drawing from the country's own experience as well as international experience of forest fire prevention.

One of the key lessons learned is that suppressing fires on drained deep tropical peatlands is extremely difficult, ineffective, and costly, both in terms of the health of those fighting the fires as well as the financial costs. The total economic loss of the fires is already in excess of USD\$15 billion or IDR 200 trillion (Prof. Purnomo, 2015)<sup>4</sup>, which only includes direct related costs and expenses and not, for example, indirect economic losses, the loss of biodiversity, carbon emissions and the irreversible long-term health impacts.

Prevention is by far the most effective way to tackle the fires, and concerted efforts should be made to that effect. The recent fires show that fire vulnerability has increased over the past two decades, and that current efforts so far have not been effective. Preventing fires in 2016 should start from a more anticipatory and systematic approach.

<sup>1</sup> Marlier, M.E. et al., 2013. El Niño and health risks from landscape fire emissions in Southeast Asia. *Nature climate change*, 3(2), pp.131–136. Available at: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4219417&tool=pmcentrez&rendertype=abstract> [Accessed January 15, 2015].

<sup>2</sup> Hooijer, A., Page, S., Jauhiainen, J., Lee, W. A., Lu, X. X., Idris, A., Anshari, G. (2012). Subsidence and carbon loss in drained tropical peatlands, *Biogeosciences*, 9, Page 1053–1071, doi:10.5194/bg-9-1053-2012

<sup>3</sup> Gaveau D L A et al 2014a Major atmospheric emissions from peat fires in South-east Asia during non-drought years: evidence from the 2013 Sumatran fires Sci. Rep. 4 6112

<sup>4</sup> Discussion on forest and land fires held by UNDP Indonesia, October 16, 2015

## 2. KEY COMPONENTS TO EFFECTIVELY ADDRESS PEAT FIRES



One of the first steps taken by the government was the request that local governments allocate budgets to preventing fires in 2016 – which is an important step. For this to be effective, the following is needed:



### 2.1 Create key enabling conditions

To effectively deal with the fires, key enabling conditions have to be put in place. These include better predicting risk, enhancing spatial data and planning transparency, creating a network of local fire prevention champions and creating appropriate budgetary allocations.

**First Enabling Condition: Climate and fire risk prediction for 2016.** With the support of the United Nations Development Programme, the Ministry of Environment and Forestry is developing a Fire Risk Management System (FRS)<sup>5</sup> that provides seasonal fire forecasts one to three months in advance. The system is being developed to address fire risks, which is supported by USAID, and reduce greenhouse gases, which is supported through the “Transiting to Phase 2” project implemented under the Letter of Intent between Norway and Indonesia. The FRS will be operational by early 2016 and will be used to inform key decision makers, particularly at the local level, and to disseminate information to targeted populations such as farmer’s associations, NGOs and community organizers.

This work is important for two reasons:

1. To enhance fire prevention and preparedness in vulnerable areas.
2. To prepare for and anticipate other hazards like floods and landslides if the rainy season is anticipated to be wetter than normal.

<sup>5</sup> See: <http://kebakaranhutan.or.id/>

The United Nations, in support of and in collaboration with MoEF, will work with decision makers to ensure that they are aware of the issues and are equipped with clear Standard Operating Procedures (SOPs). The most at-risk provinces and districts will be targeted to ensure that the most vulnerable areas are better prepared to deal with fire risks.

### **Second Enabling Condition: Access to up-to-date spatial data.**

Such data includes peatland locations where hotspots have been reported and where forest cover change is reported. Official data from the last five years is not available to local decision makers. Up-to-date maps can make clear concession and non-concession areas as well as peat or mineral areas in nine provinces that are frequently affected by forest and peatland fires such as Riau, Jambi, South Sumatra, provinces in Kalimantan, and Papua. Spatial data should be complemented with analysis of the locations and current conditions of peatlands, and of canals that have been created for draining peatlands.

Data is required to develop precise interventions to prevent forest and peatland fires at the local level. This ensures that all responsible institutions work in the same locations and foster integrated approaches starting from the planning phase. The other benefit to having correct spatial data is to inform the wider public that the government is aware of the precise locations of fires and who has control of those lands and should be held accountable for their actions. Ideally this should take place within the One Map framework, with the information for peatland areas accelerated and made available the soonest.

### **Third Enabling Condition: Identify and engage local “champions” in promoting anticipation and preventive fire management.**

The current fires demonstrate that prevention cannot solely be the responsibility of government, and organized community involvement is a prerequisite to effectively prevent forest and peatland fires. This can happen by educating individuals not to burn land and how to organize to prevent forest and peatland fires in their area. No public consensus has emerged to end land clearing by burning despite statements from key religious and social leaders, and there remains controversy over burning biomass for land clearing as it is perceived as part of local culture. One of the key lessons learned from the current fires is that the active involvement of influential figures and the support of those affected is required for effective action. In places where fire prevention has been successful, local champions played a significant role and this experience needs to be replicated.

### **Fourth Enabling Condition: Develop budget scenarios on integrated forest, peatland and land fire prevention systems.**

It is important to use available funds appropriately to tackle forest and peatland fires in certain places. Up to now there are no reliable budget calculations available that provide detailed information about costs for what is needed. For the two most affected provinces, Riau and Central Kalimantan, the response can be more effective if budgetary requirements and capacity to respond are better aligned. An understanding of the scope of the fires and their direct impacts are essential to ensure that resources are available for prevention (canal blocking, improved land management, alternative livelihoods, etc.), preparedness (health system training, training of staff on the FRS, fire brigade training), and recovery (replanting of burnt peatlands, reducing impact of post fire peat erosion).

### 2.2 Strengthen Institutional Arrangements

The Ministry of Environment and Forestry bears most of the burden in handling forest and peatland fires. When the issue is beyond the responsibility of one ministry’s mandate, it is handled by BNPB for integrated action. If more coordinated action with the Indonesian Military is required, the Coordinating Minister for Law, Politics and Security is vital. Moving to long-term prevention work that has not

yet been attempted will be a challenge also from an institutional point of view and will require a clear division of labour and strong coordination.

**There is a need to engage the Ministry of Agriculture in peatland and fire management.** Palm oil is an important crop in Indonesia, but there is no systematic way to assess the compliance levels of medium to large oil palm plantations in terms of fire prevention and peatland management. And, there is no system to ensure corporations meet certain standards. Because of this, plantation permits are sometimes given to corporations in peatland areas. Most initiatives coming from the Ministry of Environment and Forestry are from the environmental perspective. There is no systematic way to map and assist individual farmers who clear their land by burning.

At the local level, the ratio of oil palm plantation inspectors and the areas covered by oil palm plantations are unbalanced. For example, in South Sumatra, within the province over one million ha is planted with oil palm but there are fewer than seven plantation inspectors to monitor the compliance of concessions.<sup>6</sup> In addition, there is no dedicated land fire prevention system at the national or local government levels or in the Ministry of Agriculture or the Ministry of Home Affairs. Both ministries and local governments are overseeing the plantation sector and responsible for fire suppression on concessions and non-forested lands.

**Local Environment Protection Units (BLH) are not empowered, yet lead coordination at the sub-district level.** Prevention requires dedicated personnel to educate and ensure existing **focal points** at the village level are active. It is useful to feed in field information to higher levels and at the same time channel necessary information from institutions that are responsible for forest and peatland fire prevention work to village **focal points**. Such coordination has not yet been established and current personnel have not been instructed to play such coordination and education roles.

BLHs have the mandate and are the appropriate institutions to play key coordinating roles, for environmental protection is the responsibility of local government. All local governments have a BLH and haze control is a key environmental hazard. But there is no single local government that has set up coordination **focal points** at the sub-district to village level. Nor has anyone decided which local government agency should take responsibility.

**Forest and peat fire governance needs to be institutionalized through improved water management.** Most districts lack clear and well-defined fire SOPs that the public is aware of. The public has to be informed so that they understand who does what and

when. For example, who is responsible for initiating canal blocking in peatlands and who will be responsible for monitoring the water tables in canals? At the national level, there is a Presidential Instruction on Forest and Land Fires but it cannot be operationalized without local government participation, which requires regulations from the governor and district heads and even regional regulation. Figure 1 illustrates how government and stakeholders interact at different levels.

Based on figure 1, four scenarios will be presented to identify how these interactions influence prevention outcomes. All scenarios focus on canal blocking.



The first scenario is that canal blocking, constructing monitoring posts, reforesting land with peat tree species and managing water will be the government's responsibility. This is the case when community capacity is limited and there are no concessions. If the area is part of a forest estate then a forest management unit plays a critical role. In such a case the local government is responsible for all aspects and has to budget accordingly.

The second scenario is that canal blocking, constructing water table monitoring posts and water management will be managed by the community. In areas where *adat* or customary law is strong and communities are well organized this can be a viable option, in particular when it covers a complete peat dome. Communities then set the water table depth in line with national legalization and maintain the required infrastructure themselves. This fosters social capital and could lay the foundation for the establishment of a water board managed by communities and covering a peat dome. The GHG emission reduction generated can then be "sold" to REDD+ financing facilities.

The third scenario is building canal blocking mechanisms, monitoring post building and placing responsibility for managing water under the responsibility of corporation(s). This is the case when a peat dome is mainly allocated to concession holders. Consequently, government and community capacity are limited. With this scenario, government has a strong oversight function while communities control the cooperation.

The fourth scenario is that canal blocking, monitoring post building and managing water will be under joint responsibility when no single entity has sufficient capacity but there is the potential for collaboration. This might require the setup of a water board-type institution that has the authority to set water table levels covering a peat dome where stakeholders decide and agree on water table depth, peatland use and fire prevention responsibility within the framework of national legalization. The government in this scenario continues to have a strong oversight role.

Learning from previous years, it is important to have well-designed local action plans in place to prevent fires guided by national-level SOPs to ensure clear and well-defined lines of control and

<sup>6</sup> See <http://ditjenbun.pertanian.go.id/berita-362-pertumbuhan-areal-kelapa-sawit-meningkat.html>



responsibilities. It is also essential to establish the necessary infrastructure to address forest and peatland fires. The central government should introduce clear fiscal incentives and disincentives to further encourage action, and undertake regular monitoring. The Ministry of Home Affairs is crucial as it has the mandate to ensure that national-level action plans and policies are implemented based on the agreed result indicators.

### 2.3 Strengthen Coordinated Law Enforcement

Law enforcement of natural resource-related crimes has not been an effective deterrent. Instead, ineffective law enforcement enables the continuation of illegal activities in forest and peatland areas such as land clearing by burning, particularly forest and land concessions belonging to corporations. Burning practices in forest and land areas are not easily addressed or eradicated because they are linked to a spectrum of other forest and land management problems and illegal activities.

**The Multi-door Approach needs to be pursued.** To remedy the ineffectiveness of law enforcement, the Government of Indonesia in December 2012 launched the innovative "Multi-door Approach to Address Natural Resources and Environment-related Crimes in Forest Areas and Peatlands" (the "Multi-door Approach"). The Multi-door Approach seeks to establish coherence between the inquiry, investigation, and prosecution of forestry crimes. It encourages assessing and prosecuting environmental crimes along with crimes such as corruption, money laundering and tax evasion. It should prioritize crimes committed by corporations or corporate actors.

The findings of the initial assessment conducted by UNDP Indonesia in 2015 shows a positive trend in terms of increased awareness and the number of cases tried successfully under the Multi-door Approach, including an increase in investigations targeting corporations or leaders of corporations. However, the implementation of the joint regulation on the Multi-door Approach is now slowing down, with each law enforcement agency carrying out investigations and inquiries separately. Additional measures to be taken include the institutionalization of the guidelines on the Multi-door Approach, administrative constraints, increased funding, and the creation of proper coordination mechanisms.

**To address forest and land fire crimes committed by corporations, the individual investor level should be tackled.**

According to Prof. Purnomo from IPB (2015) 55 percent of fires in non-concession land belong to individual-scale investors/farmers. It is unclear how to address this as the burning of mineral/peatlands is done in a systematic manner in groups. It is advised that investigations should be carried out at the beginning of the planting season to collect data on landowners to ensure accountability. Under the current system, these groups remain hidden to avoid responsibility. A

strong message should be sent that the government will not tolerate any clearing of forest and land by fires, either by corporations or at the individual investor level.

A clear example is Central Kalimantan, where local and national newspapers have reported that immediately after forests were cleared by fires, individual investors started to plant formerly forested land with oil palm. No action was taken against the landowners or those engaged in illegal activity.<sup>7</sup>

**It is imperative to systematically revoke licenses from those concessionaires** who were causing fires and were granted permits in forest or peatland areas. This then needs follow-up by dedicated units and personnel to ensure that the land now under government control is well managed. The objective is to ensure there is no effort from other entities to convert the land into plantations or sell the cleared land to individual investors. There are indications that this is now a phenomenon in Riau, Jambi, and South Sumatra, where the middle class invest money in land or plantations without giving consideration to how the land is cleared.

### 2.4 Strengthen Oversight Through Technology Use and Public Campaigns

**In terms of technology to monitor** land clearing activities in forest and peatland areas, the utilization of satellite technology remains thus far limited in Indonesia. Given the vast forest and peatland areas of Indonesia, it is impossible to rely solely on government personnel to conduct surveillance in the field or use satellite data every 15-20 days. Meanwhile, satellite technology that could provide almost real-time information is available, proven by what the Government of Brazil is doing in the Amazon region. Having such satellite instruments will allow for quicker response to the lower government levels so they can take appropriate actions when there is activity on the ground to illegally convert forest and peatland areas.

**In terms of public campaigns,** a systematic effort to sensitize the public and targeted stakeholders and to involve citizens and civil society organizations is likely to make a difference. So far there is no government-led campaign against clearing land by burning on radio and television or in newspapers, using respected public figures, religious leaders and social leaders both at national or local levels. While the current media coverage of fires contributes to informing the public, there is also no education campaign to inform about the negative impact of forest and land burning activities on the environment, public health and the economic losses of such activity to the country. A well-designed and broad-based public campaign can enhance the effectiveness of government monitoring and is thus an essential step to eradicate forest and land burning practices.

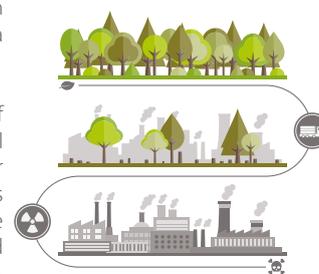
<sup>7</sup> See Kompas October 24, 2015

## 3. CONCLUSION

Moving toward long-term fire prevention is in the national interest of Indonesia with significant economic and social benefits to be reaped. From the climate change perspective, effective fire management will reduce emissions significantly as peatland-related emissions constitute the bulk of emissions in Indonesia (around 25-40 percent in 2010)<sup>8</sup> and will have a significant impact on biodiversity conservation. From a human rights perspective, tackling forest

and peatland fires ensures each individual's right to clean air and a healthy environment.

There is scope for the Republic of Indonesia and the international community to work together for effective fire prevention. Actions are to be taken now to avoid the reoccurrence of forest and peatland fires in 2016 and the years to come.



<sup>8</sup> See amongst others: DNPI, 2010. Indonesia's greenhouse gas abatement cost curve, and Ministry of Environment, 2011, Second National Communication Under United Nations Framework Convention on Climate Change

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