'Now no fire, no haze, but also no rice for people'

PERSPECTIVES OF PEOPLE AFFECTED BY HAZE FROM PEATLAND AND FOREST FIRES

Reality Check Approach

December 2016

RCA
Reality Check Approach

unicef | for every child

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To request copies of the report or for more information, please contact UNICEF and the RCA+ team. The report is also available on the RCA website, www.reality-check-approach.com.

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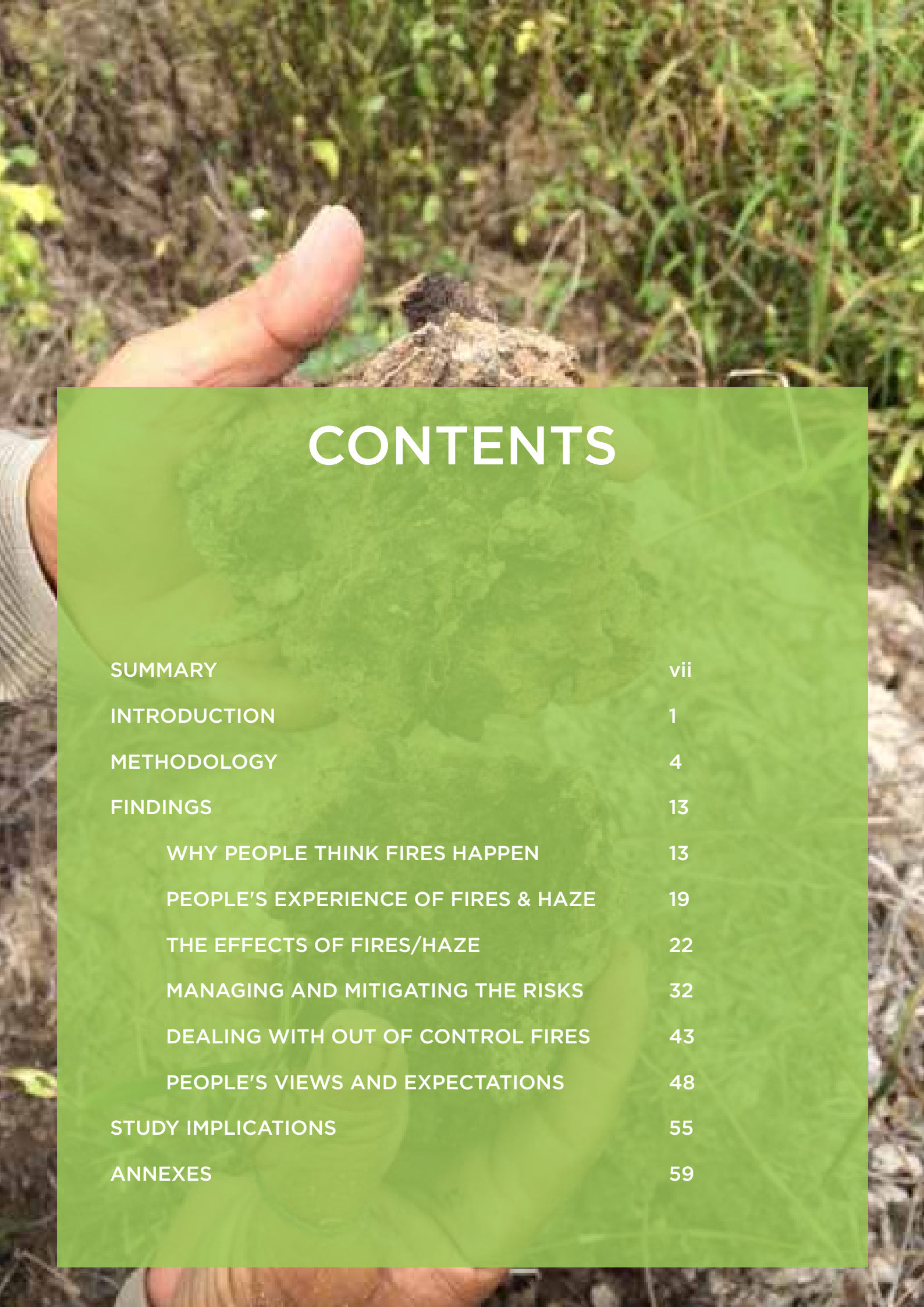
Identifying features have been removed to protect the identities of individuals photographed.



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GLOSSARY

Adipura	The Adipura Award scheme has been in existence since 1984 and awards local administrations that are committed to keeping the environment clean
Babinsa	Bintara Pembina Desa , village level military officer
BNPB	Badan Nasional Penanggulangan Bencana, National Disaster Management Agency
BPD	Badan Permusyawaratan Daerah , Village Deliberation Body
BPBD	Badan Penanggulangan Bencana Daerah , Regional Disaster Management Agency
BRG	Badan Restorasi Gambut , Peatland Restoration Agency
Bupati	Regent
CPAP	Country Programme Action Plan
Camat	Head of sub-district
DFAT	The Australian Department of Foreign Affairs and Trade
DPRD	Dewan Perwakilan Rakyat Daerah , Regional Representatives Council
DST	Digital Story Telling, a creative process where ordinary people tell their own story using their own voice and imagery using computer-based tools
Es	'Ice' but often used to refer to sweet drinks that contain ice
Es Doger	Coconut milk-based shaved ice beverage which is pink in colour and has jelly
FHH	Focal Household
GOI	Government of Indonesia
Gotong Royong	The concept/practice of reciprocity and mutual support, particularly practiced in Indonesia
HHH	Host Household
Indomaret	Indonesian supermarket chain
ISPA	Infeksi Saluran Pernafasan Akut , Acute Respiratory Infection
Manggala Agni	Brigade Pengendalian Kebakaran Hutan Indonesia , a Unit within the Ministry of Forestry for Forest Fire Control
Mantri	Mantri is the term used by many people for male nurse
MDMC	Muhammadiyah Disaster Management Centre
MPA	Masyarakat Peduli Api , local task force for fighting fires
MSG	Monosodium glutamate, a flavour enhancer
Ojek	Motorbike taxi
PNPM	Program Nasional Pemberdayaan Masyarakat (National Community Empowerment Programme), is a national programme to assist community development
Poskedes	Pos Kesehatan Desa, Health Centre at the village level, a community-based health centre that provides services through midwives, cadres or volunteers
POSKO	Pos Komando , Command centre
Posyandu	Pos Pelayanan Keluarga Berencana Terpadu , Integrated Service Post for Family Planning, or Posyandu, is a health activity at the village level partly organised and carried out by people in their own villages, with the assistance of public health wor kers
Puskesmas	Pusat Kesehatan Masyarakat , Community Health Centre are government- mandated public health clinics

Pustu	Puskesmas Pembantu , Assistant Community Health Centre, are small village health clinics often staffed by only one individual meant to complement a community's puskesmas or provide support to villages which have more limited access to a puskesmas
RCA	Reality Check Approach
RCA+	Reality Check Approach project funded by DFAT
RT	Rukun Tetangga, Neighbourhood Unit
SATGAS	Satuan Tugas , task force
Sawit	Palm oil tree
Sinetron	Indonesian soap operas
TBA	Traditional Birth Attendant
TSA	Tim Serbu Api , local task force for fighting fires
UMY	Muhammadiyah University Yogyakarta
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
Warung	a small traditional restaurant serving local food, sometimes also used to refer to smaller kiosks that sell grocery
WVI	Wahana Visi Indonesia

SUMMARY

RINGKASAN

Studi *Reality Check Approach* (RCA) ini dilaksanakan pada bulan September 2016. Studi ini bertujuan untuk mendapatkan pemahaman mengenai perspektif masyarakat yang terkena dampak kebakaran hutan dan lahan gambut. Hasil studi membantu memperjelas praktek-praktek pembukaan lahan yang ada di masyarakat sekarang ini, kesadaran atas resiko, strategi-strategi dalam mengatasi masalah dan langkah-langkah pertanggungjawaban untuk masyarakat, khususnya anak-anak, yang hidup di area-area yang terkena dampak oleh kabut asap.

Sejak kebakaran yang terjadi selama berbulan-bulan pada tahun lalu (2015) di beberapa bagian di Sumatera dan Kalimantan, yang menyebabkan kabut asap dan hilangnya hutan-hutan telah menarik banyak perhatian media internasional, bahkan banyak yang menyebutkan situasi ini sebagai sebuah 'krisis' lingkungan. Sebuah studi terbaru yang diterbitkan oleh peneliti-peneliti dari Harvard dan Columbia University menyebutkan bahwa kabut asap yang terjadi pada tahun 2015 mungkin telah menyebabkan kematian prematur dari lebih dari 100.000 orang, kebanyakan di Indonesia. Akan tetapi, pengalaman langsung dari masyarakat lokal dan persepsi atas krisis ini masih sedikit diketahui. Studi RCA ini berusaha untuk mengumpulkan pemahaman langsung, menggunakan kata-kata mereka sendiri, pandangan-pandangan dan pengalaman-pengalaman dengan menghindari interpretasi dari luar dan bias sebanyak mungkin. Untuk mencapai hal tersebut diatas, para peneliti RCA yang berpengalaman tinggal bersama masyarakat di rumah mereka sendiri, berinteraksi secara informal dengan berkumpul bersama, berbincang-bincang dan ikut serta dalam kehidupan sehari-hari selama beberapa hari dan malam. Studi ini dilakukan di periode waktu yang sama dimana biasanya kebakaran hutan sedang mencapai puncaknya seperti yang terjadi di tahun-tahun sebelumnya

Studi ini didukung oleh UNICEF sebagai komisioner dan dilaksanakan oleh RCA+ Project. Kelompok referensi untuk studi ini adalah UNICEF, Kementerian Kesehatan, Universitas Muhammadiyah Yogyakarta, Muhammadiyah Disaster Management Center, dan Wahana Visi Indonesia. Hasil temuan-temuan studi ini dimaksudkan untuk memberikan masukan-masukan bagi perencanaan program-program inisiatif UNICEF dan mitranya dimasa yang akan datang.

RCA adalah sebuah pendekatan penelitian kualitatif yang telah mendapat pengakuan secara internasional yang dinilai sebagai sebuah metode yang efektif dan efisien untuk menghimpun pemahaman-pemahaman dan perspektif-perspektif secara langsung dari orang-orang yang terkena dampak. Penelitian RCA ini melibatkan peneliti-peneliti yang sangat terlatih dan berpengalaman untuk tinggal di rumah-rumah masyarakat, turut serta dalam kehidupan sehari-hari mereka dan mengobrol secara informal dengan semua anggota keluarga, tetangga mereka dan orang lain yang mereka temui. Pendekatan yang informal ini dimaksudkan untuk memastikan bahwa relasi kuasa antara peneliti dan partisipan studi diminimalisir sehingga memungkinkan suasana untuk memperoleh pemahaman yang kaya akan konteks masyarakat dan realita dapat muncul. Pendekatan imersi memberikan peneliti-peneliti RCA kesempatan untuk melakukan

triangulasi percakapan-percakapan lewat pengalaman langsung serta lewat observasi yang dapat dilakukan dalam periode waktu yang dihabiskan dengan keluarga-keluarga partisipan studi .

Studi ini dilakukan di delapan lokasi: dua lokasi masing-masing di Kalimantan Tengah, Kalimantan Barat, dan Sumatera Selatan; dan satu lokasi di Riau dan Jambi. Provinsi-provinsi serta kabupaten-kabupaten di dalamnya dipilih berdasarkan diskusi dengan UNICEF yang didasarkan pada hasil penelitian terhadap data sekunder, dan juga dimaksudkan untuk melengkapi studi-studi lain yang telah dilakukan dengan dukungan UNICEF sebagai komisioner. Masyarakat tertentu dipilih oleh tim RCA+ berdasarkan kriteria yang disetujui bersama UNICEF, kriteria yang disepakati termasuk didalamnya mencakup lokasi rural dan peri-urban. Tim peneliti tinggal bersama total tiga puluh satu rumah tangga (yang mana tiga puluh rumah tangga memiliki paling tidak satu anak usia sekolah) selama empat hari dan malam. Meskipun keluarga-keluarga tersebut dengan total 70 anak-anak merupakan fokus dari studi, interaksi yang intensif dengan tetangga dan anggota masyarakat lainnya menghasilkan percakapan dengan total 1.399 orang yang mana 460 diantaranya adalah anak-anak (252 laki-laki dan 208 perempuan).

Kebanyakan dari desa-desa yang ditinggali melakukan teknik agrikultur tebas dan bakar, yang menurut masyarakat telah dilakukan oleh nenek moyang mereka selama beberapa generasi. Para petani menjelaskan bahwa teknik ini terjangkau, menyuburkan tanah dan, sejauh yang mereka perhatikan, selalu dilakukan dengan cara yang terkontrol dan tradisional. Petani-petani di berbagai lokasi menjelaskan bahwa ini adalah satu-satunya cara yang mereka tahu untuk bertani secara efektif walaupun mereka mengetahui ada cara lain untuk membuka lahan, contohnya dengan menggunakan *excavator*, biayanya terlalu tinggi dan kurang efektif.

Meskipun terdapat perusahaan-perusahan minyak kelapa sawit (dan perusahan lainnya) yang beroperasi di hampir setiap lokasi studi, hanya beberapa orang di beberapa lokasi (daerah peri-urban Sumatera Selatan dan Jambi) yang menyalahkan perusahaan-perusahaan tersebut atas kebakaran hutan yang terjadi. Secara umum, masyarakat berbagi bahwa mereka berpikir kebanyakan kebakaran besar yang terjadi adalah tanpa disengaja (kemungkinan disebabkan oleh membuang puntung rokok sembarangan dan penggunaan obat nyamuk bakar yang tidak hati-hati di lahan gambut), secara sederhana bahwa *'kami tidak tahu'* apa yang sebenarnya mengakibatkan kebakaran. Dari pada hanya menyalahkan pihak lain, banyak petani merasa mereka secara tidak adil telah dianggap bertanggung jawab oleh pemerintah dan yang lain atas kebakaran hutan yang terjadi pada tahun 2015.

Kebanyakan dari lokasi-lokasi yang kami kunjungi juga dalam beberapa hal bergantung pada lahan gambut, baik melalui petani-petani berladang di lahan gambut, atau karena banyak masyarakat di desa bekerja untuk perusahaan-perusahaan yang berkebun di lahan gambut. Masyarakat menjelaskan resiko membakar di lahan gabut, khususnya lahan gambut yang kering, dan api di lahan gambut sulit untuk dipadamkan. Di beberapa lokasi (peri-urban Sumatera Selatan, jambi dan peri-urban Kalimantan Barat), masyarakat mengindikasikan bahwa pohon-pohon kelapa sawit harus ditanam di lahan gambut yang lebih kering, hal ini yang kemudian meningkatkan resiko kebakaran. Guna menciptakan kondisi yang optimal untuk perkebunan, kanal-kanal air dibangun untuk '*menguras air'* sebelum penanaman.

Masyarakat bercerita kepada kami bahwa mereka telah mengalami kabut asap dari kebakaran selama bertahun-tahun dan mereka '*terbiasa dengan itu.*' Insiden kabut asap yang lebih tebal secara umum diasosiasikan dengan musim kemarau yang berkepanjangan yang dialami pada 2015. Masyarakat di pedesaan Kalimantan Tengah dan Jambi adalah yang paling khawatir terhadap insiden 2015 karena kebakaran yang besar mendekati desa mereka yang beresiko terhadap tanah, rumah dan keluarga mereka secara bersamaan. Masyarakat mengatakan bahwa kabut asap lebih tebal di pagi hari, tetapi '*angin membawanya pergi*' nantinya di siang hari. Banyak yang merasa

kota-kota mengalami dampak kabut asap yang lebih buruk dan mereka juga mengalami jenis-jenis polusi udara lainnya ketimbang yang mereka alami.

Masyarakat secara umum tidak peduli terhadap risiko kesehatan yang disebabkan oleh kabut asap dan jarang mengalami masalah kesehatan yang serius karena kabut asap. Jarak pandang yang buruk adalah permasalahan paling umum yang diingat oleh masyarakat, masyarakat menyebutkan meningkatnya waktu tempuh, kecelakaan lalu lintas, dan gangguan sementara terhadap jadwal mereka (atau keharusan untuk menyesuaikan jadwal mereka), dan mengurangi mobilitas. Bahkan permasalahan-permasalahan tersebut diatas dianggap sebagai gangguan kecil daripada permasalahan serius yang berdampak pada hidup mereka.

Ada dampak yang serius akibat kabut asap pada tahun 2015 terhadap sumber penghidupan masyarakat, termasuk gagal panen di Jambi, daerah peri-urban Kalimantan Barat, dan daerah pedesaan Sumatera Selatan, dengan penurunan (terkadang penurunan yang drastis) hasil panen sayuran, beras, dan buah kelapa sawit karena cahaya matahari yang terhalang oleh kabut asap. Jambi dan Kalimantan Tengah juga menghadapi banjir di musim hujan. Di daerah pedesaan Kalimantan Tengah, para petani merasa mereka menghadapi dua bencana alam, yaitu terbakarnya tanaman mereka dan dilanjutkan dengan banjir yang membuat mereka tidak bisa menanam. Untuk para petani di Jambi, banjir melanda lebih sering ketimbang kabut asap.

Meskipun orang dewasa bercerita bahwa mereka merasa anak-anak dan para lanjut usia dapat terganggu saat terjadi kabut asap, banyak orangtua yang menceritakan bahwa anak-anak mereka '*kuat dan tidak sakit*' selama kabut asap tahun 2015 berlangsung. Akan tetapi, ketika kami berbicara langsung dengan anak-anak, mereka bercerita bahwa pada kejadian itu, mereka mengalami batuk-batuk, demam, mata berair, perih pada tenggorokan, sesak napas, dan sakit di bagian dada. Semua orang kecuali satu wanita yang sedang hamil pada saat kabut asap menyatakan bahwa mereka merasa baik-baik saja, tapi kebanyakan dari mereka tetap melakukan tindakan pencegahan dengan berada di dalam rumah selama kabut asap sedang tebal. Sebagai tambahan, ISPA (Infeksi Saluran Pernapasan Akut) terkadang juga dibahas, kebanyakan oleh tenaga kesehatan dan orang-orang yang lebih berpendidikan dan tidak ada satu pun dari mereka yang terkena ISPA pada 2015.

Kebanyakan sekolah di berbagai lokasi ditutup beberapa saat pada kabut asap di tahun 2015. Walaupun berada di beberapa lokasi yang sama, penutupan antara sekolah yang satu dengan yang lain tidak konsisten. Sebagai contoh, di pedesaan Kalimantan Tengah, SMA diliburkan selama satu bulan sementara SD dan SMP selama tiga dan 14 hari. Informasi disampaikan dengan berbeda-beda, sebagai contoh di Riau, Kalimantan Barat, dan daerah peri-urban Sumatera Selatan, siswa mendapatkan kabar mengenai tutupnya sekolah saat mereka telah sampai di sekolah sedangkan yang lainnya telah menerima pemberitahuan terlebih dahulu. Lama dari tutupnya sekolah ditentukan di tingkat kabupaten dan tanpa mempertimbangkan perbedaan kondisi masing-masing daerah. Sekolah Dasar di pedesaan Kalimantan Tengah, kelas-kelas dimulai dua jam terlambat daripada biasanya untuk menghindari kabut asap yang tebal dipagi hari, namun kelas-kelas akan berakhir pada jam seperti biasanya.

Para orangtua berbagi bahwa mereka akan berusaha menjaga anak-anak mereka di dalam saat kabut tebal, namun bagi mereka hal tersebut sulit dilakukan karena mereka harus bekerja dan meninggalkan anak-anak tanpa pengawasan. Anak-anak menganggap ditutupnya sekolah sebagai hari libur dan mereka senang bermain dengan teman-teman, menonton televisi, dan mereka merasa bosan jika harus berada di rumah. Secara umum anak-anak, juga beberapa guru, orangtua menceritakan bahwa anak-anak akan tetap berada di luar seperti biasa saat ada kabut asap.

Masker disediakan untuk anak-anak di sekolah di seluruh lokasi kecuali di dua lokasi (keduanya di Kalimantan Barat), namun kebanyakan anak-anak bercerita bahwa mereka tidak menerima (atau tidak ingat) informasi mengenai pentingnya menggunakan masker. Dalam

beberapa kasus, guru-guru berbagi bahwa mereka hanya memiliki sedikit pengetahuan mengenai bahaya kabut asap bagi kesehatan yang dapat dijelaskan pada para siswa. Televisi hanya menyediakan sedikit informasi dan kebanyakan informasi beredar dari mulut ke mulut. Di pedesaan Sumatera Selatan, bidan-bidan mendatangi sekolah dasar untuk membagikan masker dan berbagi mengenai informasi kesehatan hanya setelah sekolah telah ditutup selama lima hari karena kabut asap dan anak-anak yang kami ajak bicara tidak ingat hal apa yang dibicarakan oleh bidan-bidan tersebut. Penggunaan masker oleh orang dewasa dan anak-anak terbatas. Orang tua berbagi bahwa meskipun mereka mencoba membuat anak-anak mereka menggunakan masker saat kabut asap sangat tebal, anak-anak seringkali melepaskan masker tersebut. Orangtua pun jarang menggunakan masker, sependapat dengan anak-anak mereka bahwa mereka '*merasa sesak karena masker*' dan kesulitan bekerja saat menggunakan masker.

Para petani di semua lokasi membicarakan peraturan tentang '*dilarang membakar*', namun terdapat kebingungan mengenai peraturan ini. Beberapa petani mengatakan bahwa tidak diperbolehkan untuk membakar sementara yang lainnya mengatakan bahwa membakar sedikit diperbolehkan. Poster dan spanduk mengenai aturan ini dipasang di berbagai tempat umum (di semua lokasi, kecuali Jambi), memicu kebingungan masyarakat karena aturan dan denda yang tertera di dalamnya berbeda-beda. Kebingungan ini juga dialami oleh pejabat pemerintah dan polisi lokal yang berkata bahwa mereka pun tidak yakin hal apa saja yang diperbolehkan. Beberapa kepala desa memperbolehkan masyarakat untuk membakar lahan hingga hampir dua hektar, sedangkan yang lainnya menceritakan bahwa tidak adil untuk mengharapkan para petani berhenti membakar lahan untuk ditanam ketika hal tersebut adalah kebiasaan tradisional mereka.

Walaupun masyarakat bercerita bahwa kabut asap pada 2016 lebih sedikit dikarenakan musim kemarau yang lebih singkat, akan tetapi banyak dari mereka yang bercerita bahwa pelaksanaan aturan untuk '*tidak membakar*' juga semakin digalakkan tahun ini. Aparat militer dan kepolisian ditugaskan untuk menginvestigasi segala jenis api dan di dua lokasi di Kalimantan Tengah, para aparat kepolisian meminta masyarakat untuk menandatangani surat perjanjian yang menyatakan bahwa mereka tidak akan membakar lagi. Baik aparat kepolisian dan pejabat pemerintah daerah terancam akan kehilangan pekerjaannya jika mereka tidak dapat mencegah kebakaran.

Beberapa lokasi yang kami datangi memiliki kelompok pemadam api lokal yang diharapkan dapat membantu pemadam kebakaran di daerahnya, namun disemua kasus, masyarakat berkata bahwa kelompok ini tidak efektif dan masyarakat tidak akan bergantung pada kelompok tersebut jika kebakaran terjadi, namun mereka akan bergantung pada para tetangga. Kelompok pemadam api ini tidak memiliki alokasi dana operasional yang dapat memungkinkan mereka menggunakan perlengkapan yang telah disediakan.

Para petani berbagi bahwa mereka terbuka pada metode-metode lain dalam bercocok tanam, bahkan untuk lokasi pedesaan seperti Kalimantan Barat di mana cara bercocok tanam tebas dan bakar sudah berakar dalam budaya mereka, jika memang ada alternatif yang tepat dan mudah diakses. Namun hingga saat ini, mereka bercerita pada kami bahwa mereka merasa tidak diikutsertakan dalam proses-proses yang dijalankan oleh pemerintah di daerah mereka dan beberapa pilihan yang disediakan tidak memadai.

Laporan ini menyimpulkan beberapa implikasi studi:

Kesehatan

» Masyarakat merasa bahwa kabut asap hanya menyebabkan ketidaknyamanan yang minor, hal ini utamanya disebabkan karena minimnya akses pada informasi mengenai dampak kesehatan (terutama dampak jangka panjang) dari paparan asap.

» Terbatasnya sumber informasi yang efektif baik melalui mulut ke mulut maupun melalui TV. Informasi juga hanya terbatas mengenai perintah penggunaan masker , tanpa penjelasan

yang cukup.

Penutupan Sekolah

» Pertimbangan penutupan sekolah yang ditentukan oleh dinas pendidikan di tingkat kabupaten menyebabkan sekolah diliburkan bahkan saat tidak ada kabut asap di masyarakat tersebut. Pertimbangan ini sebaiknya akan lebih baik diserahkan pada penanggung jawab tiap-tiap sekolah di tingkatan lokal.

» Konsekuensi yang tidak diinginkan saat sekolah tutup adalah anak-anak mungkin akan berada di rumah tanpa pengawasan saat orang tua sedang bekerja dan kerap kali mereka menghabiskan waktu di luar bersama teman-teman. Selain itu, orangtua yang tidak ingin meninggalkan anaknya tanpa pengawasan di rumah akan membawa anak mereka ke ladang, menimbulkan risiko yang lebih tinggi untuk terpapar api dan asap.

Aturan dan Pelaksanaan

» Masyarakat tidak merasa bahwa praktik tebas dan bakar yang menjadi penyebab kebakaran yang lebih besar dan kabut asap karena praktek ini dikontrol dengan hati-hati dan para petani memiliki pengalaman dalam menjaga api. Mereka menganggap Beberapa kejadian-kejadian dianggap penyebab kebakaran yang tidak terkendali, terutama yang disebabkan puntung rokok yang dibuang sembarangan.

» Larangan membakar telah diberlakukan baik terhadap para petani kecil maupun terhadap perusahaan perkebunan dengan cara yang sama, padahal para petani berpikir bahwa sebaiknya perlu ada pembedaan.

» Masyarakat juga berpikir bahwa pelaksanaan aturan seharusnya berfokus pada pencegahan api yang disebabkan kecelakaan (membuang puntung rokok sembarangan dan lainnya) daripada mengintimidasi petani-petani kecil yang menggunakan cara tradisional dan praktek menjaga api, yang mana mereka bergantung sebagai sumber penghidupan mereka.

» Aturan tentang pembakaran tidak konsisten serta ketentuan pidana dan denda yang berbeda-beda. Intepretasi lokal dan kelonggaran hukum muncul, masyarakat semakin bingung mengenai hal apa yang diperbolehkan. Nomor kontak dan nomor yang dihubungi berkaiatan dengan prosedur untuk hal-hal darurat harus disediakan.

» Di berbagai lokasi, masyarakat merasa bahwa penekanan seharusnya berada pada pemberian solusi terhadap masalah-masalah dengan pengoptimalan cara bercocok tanam yang sesuai kondisi tertentu mereka dan langkah-langkah pencegahan api yang lebih baik dari pada melarang seluruh kegiatan membakar.

» Menurut masyarakat, taktik menakut-nakuti bukanlah strategi jangka panjang yang efektif untuk menghadapi masalah kebakaran dan kabut asap dan mungkin akan menyebabkan aktivitas-aktivitas tersembunyi dari pada peningkatan kesadaran terhadap kesehatan dan keamanan.

Bantuan Kedepan

» Para petani merasa mereka akan lebih terbantu dengan demonstrasi cara-cara bertani alternatif dari pada hanya diberikan pelatihan atau bibit gratis. Mereka ingin bimbingan-bimbingan dan dukungan secara langsung ditempat sesuai lokasi yang mempertimbangkan konteks agro-ekonomi daerah mereka.

» Anggapan-anggapan mengenai batasan-batasan penggunaan dana desa yang ada adalah dana tersebut lebih banyak dialokasikan untuk infrastruktur fisik. Akan tetapi, jika administrator desa dapat didorong untuk menggunakan dana dengan lebih kreatif, dana dapat dialokasikan untuk hal-hal darurat dan untuk biaya operasional yang berhubungan dengan pencegahan api dan pemadaman api,

serta untuk kampanye peningkatan kesadaran.

» Masalah kabut asap yang tebal bukan masalah tahunan dan masyarakat sadar risiko lebih besar saat terjadi kemarau yang panjang seperti tahun 2015. Hal tersebut menunjukkan bahwa penekanan khusus dapat dilakukan pada program-program pencegahan dan pelaksanaan pada tahun-tahun dengan kondisi yang buruk dari pada melalui langkah-langkah intensif tahunan

SUMMARY

This Reality Check Approach (RCA) study was carried out in September 2016. The study was intended to gather insights on the perspectives of people affected by peatland and forest fires. The findings help to shed light on current land clearing practices, risk awareness, coping strategies and accountability measures for people, in particular children, living in in haze-affected areas.

As fires blazed for months last year (2015) in parts of Sumatra and Kalimantan, the resulting haze and loss of forests drew much international media attention, many referring to the situation as an environmental 'crisis.' A recent study published by researchers at Harvard and Columbia University has suggested that the 2015 haze may have led to the premature deaths of over 100,000 people, mostly in Indonesia. However, local people's first hand experiences and perceptions of this crisis have been little explored. This RCA study attempted to gather direct insights, using people's own words, views and experiences and avoiding outside interpretation and bias as much as possible. To achieve this, experienced RCA practitioners lived with people in their own homes, interacting informally by hanging out, chatting, and joining in their everyday lives over several days and nights during a period when fires would have been at their height in previous years.

The study was commissioned by UNICEF and implemented by the RCA+ project. The Reference Group for the study included UNICEF, the Ministry of Health, Muhammadiyah University Yogyakarta, the Muhammadiyah Disaster Management Center, and Wahana Visi Indonesia. The findings of the study are intended to provide inputs into future planning of programme initiatives of UNICEF and its partners.

RCA is an internationally recognised approach to qualitative research which is regarded as an efficient and effective means to gather insights and perspectives directly from those affected. It involves highly trained and experienced researchers staying in people's homes, joining in their everyday lives and chatting informally with all members of the family, their neighbours and others they come into contact with. This relaxed approach ensures that the power distances between researcher and study participants are minimised and provides enabling conditions for rich insights into people's context and reality to emerge. The immersion approach provides researchers with opportunities to triangulate conversations with their own first-hand experience and observations from the time spent with their study families.

This study took place in eight locations: two locations each in Central Kalimantan, West Kalimantan, and South Sumatra; and one location in both Riau and Jambi. These provinces and the districts within them were selected based on discussions with UNICEF along with secondary data research, and were intended to complement other studies commissioned by UNICEF. The particular communities were selected by the RCA+ team based on criteria agreed upon with UNICEF, which included having a mix of rural and peri-urban locations.
The research team stayed with a total of thirty-one households (of which thirty households had at least one school-going child) for four days

and nights. While these families with a total of 70 children constituted the main focus of the study, intensive interactions with neighbours and other members of their communities resulted in the study drawing on conversations with a total of 1,399 people of whom 460 were children (252 boys and 208 girls).

The majority of villages stayed in were practicing slash-and-burn agriculture, something which people said their ancestors have done for generations. Farmers rationalize this practice as it is affordable, fertilises the land and, as far as they are concerned, is always undertaken in a controlled and traditional way. Farmers across locations explained that this is the only method they know to farm effectively and though they were aware of other methods for clearing land, for example by using mechanical excavators, the costs are too high and are less effective.

While there were palm oil (and other) companies operating in most of the study locations, only people in some locations (peri-urban South Sumatra and Jambi) placed the blame for big fires on these companies. Generally, people shared that they thought most of the big fires were accidental (probably caused by careless disposal of cigarettes or poor management of mosquito coils in the peatland), simply concluding that '*we have no idea*' what actually caused the fires. Rather than blaming others, many farmers felt they were being unfairly held responsible by the Government and others for the fires in 2015.

Most of the locations we visited were also in some way dependent on peatland cultivation, either through farmers cultivating peatland themselves, or because many in the villages work for companies cultivating peatland. People explained the risks of burning on peatland, particularly dry peatland, and that fires on peatland soil are particularly difficult to extinguish. In a few of the locations (peri-urban South Sumatra, Jambi and peri-urban West Kalimantan), people indicated that palm oil trees need to grow on drier peatland which in turn generates a higher fire risk. In order to create the optimal conditions for cultivation, canals are constructed to '*drain the water*' before planting.

People told us they have experienced haze from fires for many years and that they are '*used to it*.' More severe haze incidence was generally associated with exceptionally prolonged dry seasons as experienced in 2015. People in rural Central Kalimantan and Jambi were the most concerned about the 2015 incidents as large fires had come close to their villages with concomitant immediate risk to people's land, homes, and their families. Where haze was a problem people said it was heavier in the mornings, as the '*wind blows it away*' later in the day. Many felt cities experienced worse haze and other kinds of air pollution than they do.

People were not generally concerned about the health risks associated with the haze and had rarely experienced any serious health issues because of the haze. Poor visibility was the most common concern noted by people, with people mentioning increased transportation times, more road accidents, temporary disruption of schedules (or needing to purposely adjust their schedules), and decreased mobility. Even these issues were said to be minor annoyances rather than serious concerns impacting their lives.

There were some serious impacts of the 2015 haze to people's livelihoods including crop failures in Jambi, peri-urban West Kalimantan and rural South Sumatra with reduced (sometimes vastly reduced) yields of vegetables, rice, and palm oil fruit because of obstruction of sunlight caused by the haze. Jambi and rural Central Kalimantan also experience floods in the wet season. In rural Central Kalimantan farmers felt they had experienced a double catastrophe of burned crops followed by floods which prevented re-planting. For farmers in Jambi the floods affected them far more than the haze.

While adults told us that they felt children and the elderly could experience some minor discomfort with the haze, most parents told us their children were '*strong and did not get sick*' during the 2015 haze. However, when talking directly with their children, they shared they had experienced coughs, fever, teary eyes, sore throats, had trouble breathing, and chest pain. All but one of the women we met who

had been pregnant at the time of the haze said they had felt fine, but most had nevertheless taken precautions by staying indoors when the haze had been severe. Additionally, while '*ISPA*' (*Infeksi Saluran Pernapasan Akut,* Acute Respiratory Infection) was sometimes mentioned, it was mostly by health workers and people with higher education and no one we spoke with had themselves experienced or been diagnosed with *ISPA* in 2015.

Most schools across locations had closed at some point during the 2015 haze. But even in the same location closures were not consistent. For example, in rural Central Kalimantan, the senior high school closed for one month while the primary school and junior high were closed for three and fourteen days, respectively. Information channels operated differently so, for example in Riau, West Kalimantan and peri-urban South Sumatra students were informed of school closure after already coming to school whereas others had advance warning. Closures were determined at district level and did not take into account the local variation in conditions. In rural Central Kalimantan, the primary school started classes two hours later than usual to avoid the worst of the morning haze, but classes still ended at their usual time.

Parents shared that they would try to keep their children inside during periods of severe haze, but said this was difficult to enforce as they had go out to work and leave children unsupervised. Children regarded the school closures as holidays and liked to play with friends, watch TV and said they felt bored if confined to the house. In general children, and in some cases their teachers and parents, told us that they would be outdoors as usual during the haze.

Masks were provided to children at schools in all but two locations (both in West Kalimantan), but most children told us they did not receive (or did not remember) any health information on the importance of wearing masks. In some cases teachers shared that they knew little about the potential health risks of the haze to share with the students anyway. TV provided a minimal source of information and most of the information circulating was by word of mouth. In rural South Sumatra, midwives visited the primary school to distribute masks and share health information only *after* the school had been closed for five days due to haze, and the children we spoke with did not remember what these midwives had talked about. Mask use by both adults and children was limited. Parents shared that although they tried to make their children wear masks during severe haze they would often take them off. Parents themselves rarely wore masks, concurring with their children that they '*felt suffocated by the masks*' and, in particular, that it was difficult to work while wearing a mask.

Farmers in all of the locations talked about the '*no burning*' regulations, but there was confusion about these regulations. Some farmers said that no burning was ever allowed while others said that burning small plots was permitted. Posters and banners displayed at various places in communities (all locations, except Jambi), further fueled people's confusion as these quoted different laws and different penalties. This confusion extended to government officials and local police who said they too were unsure about what was permitted. Some Village Heads allowed people to burn up to two hectares, while others told us it was unfair to expect farmers to stop burning land for planting when it was their traditional practice.

Although people shared that the lack of haze in 2016 related to a shorter than usual dry season, many told us that enforcement of '*no burning*' regulations was also much stronger this year. Military and police had been deployed to investigate all types of fires and in both the Central Kalimantan locations, police had asked people to sign a pledge stating they would not burn. Both police and local government officials had been threatened with loss of their jobs if they were unable to prevent fires.

A number of the locations we visited had local task forces intended to assist with fighting fires in the area, but in all cases people said that these were not effective and that they would not rely on these in the case of a fire, but would rather depend on their neighbours. The task forces did not have operational budgets to enable them to use equipment they had been

provided.

Farmers shared that they were open to different methods of farming, even in locations like rural West Kalimantan where slash-and-burn practices are deeply embedded cultural traditions, if there was an appropriate and accessible alternative. Until now however, they told us that they did not feel included in government processes and proposals for their area and that some options provided were not viable.

The report concludes with a number of study implications:

Health

» People feel the haze causes them only some minor discomfort, largely because of minimal access to information about health impacts (especially the long term impacts) of exposure to haze.

» Effective sources of information are limited to word of mouth or TV. The information is limited to directives to wear masks without adequate explanation.

School closures

» The practice of determining school closures by the district education office resulted in closures even when there was no haze in communities. This decision would perhaps better be left to individual school authorities at local level.

» An unintended consequence of school closures is that children may be left unsupervised at home when parents are out working, and are more likely to spend time outdoors with friends. Furthermore, those who do not want to leave their children unsupervised at home may take them to the fields, incurring a higher risk of exposure to fire and smoke.

Regulation and enforcement

» People do not feel it is the slash-and-burn practices which cause the bigger fires or the haze as this practice is carefully controlled and farmers are experienced at managing these purposeful fires. Accidents are regarded as the primary cause of wildfires, especially careless disposal of cigarettes.

» The ban on burning has been enforced on small farmers and company plantations alike, when farmers think a distinction was necessary.

» People also think that enforcement should be focused on preventing accidental fires (careless disposal of cigarettes etc.) rather than intimidating small farmers over their traditional and controlled burning practices, which they depend on for their livelihoods.

» Regulations around burning are inconsistent and penalties vary. Local interpretation and some leniency prevails, further confusing people regarding what is permitted. Contact numbers and contact procedures in case of emergencies need to be provided.

» Across locations, people feel the emphasis should be on providing solutions to the problems of optimising farming practices for their particular situation and better wildfire prevention measures instead of a blanket ban on all burning.

» Scare tactics, people feel, are also not an effective long term strategy to deal with the problem of fires and haze and may result in more clandestine activities rather than promoting health and safety concerns.

Future help

» Farmers feel they will benefit from practical demonstrations of alternative farming practices rather than being given more training and free seeds. They want in situ advice and support which takes into consideration their particular agro-economic context.

» The perceived limitations on the use of existing Village Funds means that these funds are largely invested in physical

infrastructure. However, if Village Administrations can be encouraged to use the funds more creatively they could be earmarked for emergencies and for operational costs associated with fire prevention and fire-fighting as well as awareness campaigns.

» The problem of severe haze is not annual and people recognize that the risks are greater when there are long dry seasons as experienced in 2015 suggesting that special emphasis can be given to prevention and enforcement programmes in years when conditions are particularly bad rather than resource intensive annual measures.

INTRODUCTION

INTRODUCTION

This Report presents the main findings of the Reality Check Approach (RCA) study, which was conducted in September 2016. This study is part of a series of qualitative studies planned under the first year of the new Country Programme (CPAP, 2016-2020) of UNICEF and the Government of Indonesia (GOI). The studies aim to provide insights into issues affecting the lives of children in Indonesia. This particular study sought the perspectives and experiences of people, especially children, affected by air pollution from peatland and forest fires, commonly referred to as 'haze.'

There are widespread forest fires in Indonesia almost every year during the annual dry season, when farmers prepare the land for agriculture using the 'slash-and-burn' technique (explained in Section 3.1). The 2015 fires proved to be particularly devastating for the country because of extreme dry conditions, which further exacerbated the fires.

Whilst the economic and environmental impacts of the fires have been broadly publicised, with international media covering the haze issue extensively in 2015, the human dimension of the crisis is less widely known. Reports are focused on how the fires have devoured hectares of forest and peatland that are habitats to endangered species of animals, with less coverage of the impact that these fires have on the everyday lives of people living in the affected areas. Fires and subsequent haze of this scale are bound to have an effect on the health and wellbeing of people, particularly children, which needs to be understood in the context of local practices.

UNICEF and partners, including Muhammadiyah University Yogyakarta (UMY), the Muhammadiyah Disaster Management Centre (MDMC), and Wahana Visi Indonesia (WVI), are conducting a review of the secondary data sources to provide an analysis of air pollution in haze-affected communities. This RCA study complements the secondary data source review and provides people's perspectives on the current land clearing practices, risk awareness, coping strategies and accountability measures. The RCA study involved researchers spending extended periods of time living with families in haze affected areas and, through informal interaction with them and the wider community, sought to understand their experience. For any programme which is aimed at risk management and reduction to be successful, account needs to be taken of the experience of those people who are directly affected by the fire and haze crises. Enabling people to share their experience, in their own words, provides rich and relevant insights and helps us to understand what they consider important.

The RCA study is expected to provide insights for UNICEF and relevant GOI bodies, including the Peatland Restoration Agency (*Badan Restorasi Gambut*, BRG), in order to influence the ongoing policy dialogue on future community-based programmes including local resource allocation for health, environment and hazard risk management. The study is also a component of a planned longer term partnership between UNICEF, RCA, UN Pulse Lab and United Nations Environment Programme (UNEP).

STRUCTURE OF THIS REPORT

This report begins with an overview of the Reality Check Approach (RCA) methodology, including adaptations made for this study as well as study limitations (section 2). The following section 3 presents the main findings and is divided into six subsections beginning with what people say about why fires happen; this is followed by a section which details people's experience of fires and haze. The third section explores the effects of the fires and haze on adults and children as well as specific effects on children's education; the fourth section explains how people manage and mitigate the risk of fires and haze while the fifth section presents their experience of dealing with out of control fires and excessive haze and explores people's own practices and the outside help they receive. The shorter, sixth section presents people's aspirations for the future. The report concludes with implications that have emerged from conversations with people themselves as well as from analysis of the findings.

METHODOLOGY

METHODOLOGY

The Reality Check Approach (RCA) is a qualitative research approach involving trained and experienced researchers staying in people's homes for several days and nights, joining in their everyday lives and chatting informally with all members of the family, their neighbours and others they come into contact with. This relaxed approach ensures that power distances between researcher and study participants are diminished and provides the enabling conditions for rich insights into people's context and reality to emerge. By building on conversations, having multiple conversations with different people and having opportunities for direct experience and observation, confidence in the insights gathered is enhanced compared to many other qualitative research methods. RCA is often used to understand longitudinal change through staying with the same people at approximately the same time each year over a period of several years.

The RCA differs from most other approaches to research. Firstly, it is not theory-based so that there are no preconceived research frameworks or research questions. This is deliberate as the approach seeks to enable emic (insider) perspectives to emerge and to limit etic (outsider) interpretation or validation. The premise for researchers is one of learning directly from people themselves. Secondly, RCA is always carried out in teams in order to minimise researcher bias and to optimise opportunities for triangulation. Thirdly, and importantly, RCA teams are independent and make this explicit with the people who participate in the study. Our objective is to ensure that the views, perspectives and experiences of people are respectfully conveyed to policy and programme stakeholders. The researchers become a conduit rather than an intermediary. This is why RCA studies do not provide recommendations but promote the idea of sharing implications, which are grounded in what people themselves share and show us.

The approach builds on and extends the tradition of listening studies (see Salmen 1998 and Anderson, Brown and Jean 2012) and beneficiary assessments (see SDC 2013) by combining elements of these approaches with researchers actually living with people and sharing their everyday lives in context.

RCA is sometimes likened to a 'light touch' participant observation. But while it is similar in that it requires participation in everyday life within people's own environments, it differs by being comparatively quick and placing more emphasis on informal, relaxed and insightful conversations rather than on observing behaviour and the complexities of relationships. It also differs by deriving credibility through multiple interactions in multiple locations and collective pooling of unfiltered insights so that emic perspectives are always privileged.

1 Salmen, Lawrence F. 1998. "Toward a Listening Bank: Review of Best Practices and Efficacy of Beneficiary Assessments". Social Development Papers 23. Washington: World Bank.
Anderson, Mary B., Dayna Brown, Isabella Jean. 2012. Time to Listen; Hearing People on the Receiving End of International Aid. Cambridge MA:CDA.
2 Shutt, Cathy and Laurent Ruedin. 2013. SDC How-to-Note Beneficiary Assessment (BA). Berne: Swiss Agency for Development Cooperation.

Important characteristics of the Reality Check Approach are:

- Living with rather than visiting (thereby meeting the family/people in their own environment, understanding family/ home dynamics and how days and nights are spent);
- Having conversations rather than conducting interviews (there is no note taking thereby putting people at ease and on an equal footing with the outsider);
- Learning rather than finding out (suspending judgement, letting people take the lead in defining the agenda and what is important);
- Centring on the household and interacting with families/people rather than users, communities or groups;
- Being experiential in that researchers themselves take part in daily activities (collecting water, cooking, work, hanging out) and accompany people (to school, to market, to health clinic);
- Including all members of households/ living in units;
- Using private space rather than public space for disclosure (an emphasis on normal, ordinary lives);
- Accepting multiple realities rather than public consensus (gathering diversity of opinion, including 'smaller voices');
- Interacting in ordinary daily life (accompanying people in their work and social interactions in their usual routines);
- Taking a cross-sectoral view, although each study has a special focus, the enquiry is situated within the context of everyday life rather than simply (and arguably artificially) looking at one aspect of people's lives;
- Understanding longitudinal change and how change happens over time.

All team members kept their own field notes but they never wrote these in front of people they were conversing with. To illustrate context and findings, photos were taken, all with the consent of the people concerned. These narratives and visual records formed the basis of detailed one day debriefing sessions held with each of the sub-teams as soon as possible after each round of the study was completed. These were led by the study team leader and a sub team leader and provided an important opportunity to further triangulate findings. These de-briefings were captured in rich note form and comprise the core documentation for this study.

A RCA researcher helps husk rice while chatting with farmers

Following the completion of all study rounds a sense making workshop was held with some members of the study team to collectively review and analyse the findings to draw together some of the key patterns that emerged from the data.

Insights from the Digital Story Telling (DST) process, which was facilitated in one study location by researchers who were part of the RCA study, were also used to complement some of the study findings.

STUDY PARTICIPANTS AND LOCATIONS

Locations

The five provinces and districts for the study were purposefully selected based on the criteria worked through with UNICEF as the study commissioner. While three of the five provinces and districts were suggested by UNICEF in the study Terms of Reference, two provinces were proposed by the RCA + team based on secondary source review. The two additional

locations were of interest to the team as one of the provinces had the highest number of acute respiratory infection (ISPA) cases recorded for 2015, while the other had the highest incidents of fire in 2016.

The following criteria were regarded as important in the purposive selection of locations:

» Inclusion of urban, peri-urban and rural communities, as the experience of dealing with the fires, and resultant haze, risk awareness and mitigation and coping strategies were likely to be context-specific.

» Inclusion of communities closer to the hotspots (peatland areas, palm oil plantations) as well as communities that were further away, as coping mechanisms, health risks, actions taken and adaptation were likely to differ.

» Inclusion of communities with and without programmes and interventions from the Government (BRG target areas) and development partners.

A total of eight locations were selected based on the above criteria (see table below).

The study team

The study team of twenty researchers included two international researchers and 18 Indonesian researchers (see Annex 1). One international researcher was accompanied by an Indonesian researcher/translator while the other is fluent in Bahasa Indonesia. All researchers and researcher/translators had participated in a full Level 1 RCA training. The four main sub teams were led by experienced RCA practitioners.

Study participants

Host Households (Families stayed with)

As the study sought to understand the perspectives of children and their families within haze affected communities, the households were selected with the view of meeting the following criteria:

All households:

» have been affected by air pollution from peatland and forest fires in 2015

» must be multi-generational families, with school-aged children.

Some of the households were/had:

» three-generational families

» families with toddlers and/or babies

» received aid during haze period in 2015

All study households were selected by individual team members through informal discussions with people in the community (e.g. at teashops) *in situ*. Care was taken to ensure that people understood the nature of the RCA and the importance of staying with ordinary families and not being afforded 'guest status.'

The households selected were, where possible, at least fifteen minutes walk away from each other, to ensure interaction with a different constellation of neighbour households and other community members. Each team comprised three to four team members so that the study involved living with a total of thirty-one families.

Each team member discreetly left a 'gift' of basic food items, torches, stationery and toys for the family they stayed with on leaving, to the value of around IDR 200,000 to compensate for any costs incurred in hosting the researcher. As researchers insist that no special arrangements

Province	Sub Location	Sub Location
Central Kalimantan	Peri-urban, river bank (CK1)	Rural, swampland and forest (CK2)
West Kalimantan	Peri-urban, low lying peatland (WK1)	Rural, low lying, near a river (WK2)
South Sumatra	Peri-urban, swampland (SS1)	Rural, low lying lands, swampland and forest (SS2)
Riau	Peri-urban, low land (RU)	-
Jambi	-	Rural, (JJ)

are made for them, they help in domestic activities and do not disturb income-earning activities, the actual costs to 'hosts' are negligible. The timing of the gift was important so people did not feel they were expected to provide better food for the researchers or get the impression that they were being paid for their participation.

Neighbours and other community members

In addition to the thirty-one host families, team members also interacted closely with their neighbours (on average about four additional households each) and the wider community, including kiosk owners, farmers, teachers, health service providers, policemen, members of community fire prevention groups, village officials using the same approach of informal conversations (see Annex 3 for List of people met).

As typical of RCA studies of this size at least 1399 people participated in the study (see table below), although in depth information was mostly gathered from the families stayed with.

Study areas for conversation

RCA is not a theory based research method although it often generates people's theories of change and contributes well to grounded theory approaches. It does not have a pre-determined set of research questions relying as it does on iterations from information gathered *in situ* and building on progressive series of conversations. However, as part of the briefing process for researchers areas for conversations were developed to act as a guide to ensuring that conversations were purposive. The outcome of the deliberations with the research team are provided in Annex 2 - Areas for Conversations.

Ethical considerations

Like most ethnographic-based research, there is no intervention involved in RCA studies. At best the study can be viewed as a way to empower the study participants in that they are able to express themselves freely in their own space. Researchers are not covert but become 'detached insiders'. As per American Anthropological Association Code of Ethics, RCA adopts an ethical obligation to people '*which* (when necessary) *supersedes the goal of seeking new knowledge'*. Researchers *'do everything in their power to ensure that research does not harm the safety, dignity or privacy of the people with whom they conduct the research'*. All researchers are briefed on ethical considerations and Child Protection Policies before every field visit (irrespective of whether they have previously gone through this). All researchers sign Code of Conduct and Child Protection Policy declarations as part of their contracts. Additionally, acknowledging

Study Participants	Number	Intention
Families affected by haze (Host households (HHH))	15 rural families 16 urban/peri-urban families	Close interaction and conversations with all members of the family to understand perspectives and experience of families directly affected by the fires and haze
Neighbour households (Focal households (FHH))	636 people	Less detailed interaction than HHH, mostly conversations to explore diversity of family experience and perspectives and to generate a wider view of the impacts of the fires and resultant haze in the community and to triangulate the HHH insights
Service providers (local government, education, health and others)	87 people	Opportunistic engagement through informal conversations to explore their role, interactions with HHH/FHH
Key Actors (plantation workers, community fire prevention groups (*Masyarakat Peduli Api*), Forest Fires Fighting Unit (*Manggala Agni*), police, military and village military officer (*Babinsa*)	66 people	Opportunistic engagement for informal conversation to explore their role, perspectives and interactions with HHH/FHH
Community people	457 people	Contextual conversations as well as triangulation

UNICEF's procedure for ethical standards, verbal informed consent was obtained from all children and their legal guardians participating in the study for their stories and photos to be recorded and shared. All data (written and visual) was coded to protect the identity of individuals, their families and communities. As a result the exact locations and identities of households and others are not revealed in this report.

Study limitations

As with other research methods, a number of limitations were encountered during the fieldwork:

- As explained by people there is no '*typical dry season*' and this year (2016) fires did not last long because it rained during the dry season. This meant that none of the sub teams saw or experienced significant haze of any kind during the fieldwork. This made it hard to situate conversations around the haze and we relied on people's recall of past experiences of fires and haze. Particular difficulties were faced in gauging what people meant by the severity of past haze experiences, which any way are subjective but exacerbated by a lack of comparison to direct experience.
- Researchers experienced suspicion in a few of the areas due to recent rumours and reports of criminal acts (such as kidnapping, illegal organ sales, and narcotics selling) which resulted in one team needing to move to a different area of the sub-district.
- In a few of the locations, people used local language limiting the opportunity for researchers to take part in group conversations.
- One of the locations (peri-urban West Kalimantan) had a more pronounced male dominant culture which meant that groups of women were more reluctant to speak directly with male researchers, and that wives would often defer to their husbands during, or withdraw themselves from, conversations with a researcher where both husband and wife were present.

The families

Six of our thirty-one HHH were three generational and home to grandparents, parents and children, while the rest of the families comprised of parents and their children.

A majority of our families had two or more sources of livelihood, with twenty-two families either owning their own farmland, or working on others' lands cultivating rubber (except in peri-urbran Central Kalimantan), palm oil (except peri-urbran Central Kalimantan and rural West Kalimantan), paddy (in peri-urbran Central Kalimantan, rural Central Kalimantan, Jambi and rural West Kalimantan), some vegetables and fruits. While three of our families depended entirely on farming, the others were supplementing their income through construction work, fishing, kiosks, motor workshops and others. Three of the families were home to Village Heads, five families had teachers and two families had PNPM (*Program Nasional Pemberdayaan Masyarakat*) facilitators.

All but three of the HHH have their own toilets. The toilets are either attached to the main house or a separate outside structure. Two of the three households without toilets use their neighbours' toilets while one household uses the river for defecation. The access to water is through own or shared wells (peri-urban South Sumatra, rural South Sumatra, rural Central Kalimantan, Riau, Jambi), or piped water from rivers and streams (peri-urban Central Kalimantan, peri-urban West Kalimantan, rural West Kalimantan). Some families also purchase factory-produced gallon water for drinking. While most households have metered electricity, families in the rural West Kalimantan location use diesel-operated generators, as the location did not have main grid electricity.

Table 1: Host Household Livelihoods

Household	Ethnicity	Religion	Livelihoods														
			Farming	Fishing	Kiosk/small trade	Teacher	Civil servant	PNPM	Motor workshop	Priest	Health official	Swallow nest	Mining	Constr-uction	Labourer	Electronic repair	University worker
CK1 (a)	Banjar	Islam			✔				✔								
CK1 (b)	Banjar	Islam			✔							✔		✔			
CK1 (c)	Banjar	Islam	✔				✔					✔					
CK1 (d)	Banjar	Islam	✔											✔			
CK2 (a)	Javanese	Islam	✔			✔							✔				
CK2 (b)	Javanese	Islam	✔				✔	✔					✔				
CK2 (c)	Javanese	Islam															
CK2 (d)	Javansese	Islam	✔		✔							✔		✔			
RU (a)	Javanese	Islam	✔		✔										✔		
RU (b)	Bataknese	Islam			✔				✔								
RU (c)	Bataknese	Islam			✔										✔		
RU (d)	Javanese/ Maduranese	Islam	✔													✔	
JJ (a)	Melayu	Islam	✔	✔													
JJ (b)	Javanese	Islam	✔														
JJ (c)	Javanese	Islam	✔		✔				✔								
SS1 (a)	Pedamaran	Islam					✔										
SS1 (b)	Pedamaran	Islam			✔	✔									✔		
SS1 (c)	Pedamaran	Islam			✔												
SS1 (d)	Pedamaran	Islam	✔			✔									✔		
SS2 (a)	Javanese	Islam	✔		✔						✔						
SS2 (b)	Javanese	Islam/ Buddhist	✔			✔				✔							
SS2 (c)	Javanese	Islam	✔														
SS2 (d)	Javanese	Islam	✔			✔			✔								
WK1 (a)	Javanese/ Dayaknese	Islam	✔	✔	✔												
WK1 (b)	Bataknese	Christian	✔														
WK1 (c)	Dayaknese	Christian	✔														
WK1 (d)	Dayaknese	Catholic	✔														
WK2 (a)	Dayaknese	Catholic	✔		✔												
WK2 (b)	Javanese/ Dayaknese	Catholic	✔				✔										
WK2 (c)	Dayaknese	Catholic	✔														✔
WK2 (d)	Dayaknese	Christian	✔				✔								✔		

STUDY LOCATIONS

Jambi

Location: The Jambi location is rural and 1.5 hours east from the district/provincial capital.

Livelihoods: Most people are farmers and grow rubber, paddy (some), corn, vegetables and some people make and sell dried fish. People began cultivating palm oil in the 90s and this picked up pace once the companies came in late 90s - mid 2000s. People also work as labourers in the company-owned, as well as individual-owned palm oil plantations. The area has yearly floods and people say they have adjusted their planting and harvest times according to this.

Social: The people here are native Melayu Jambi and Javanese trans-migrants from the 80s, with majority following Islam, some Christians.

Facilities: The location has a pustu, posyandu, village office, primary school, madrasa for afternoon studies. The closest puskesmas is 25-30 minutes by motorbike and the SMP and SMA are in neighbouring villages. Majority of the houses have electricity installed 10 years ago.

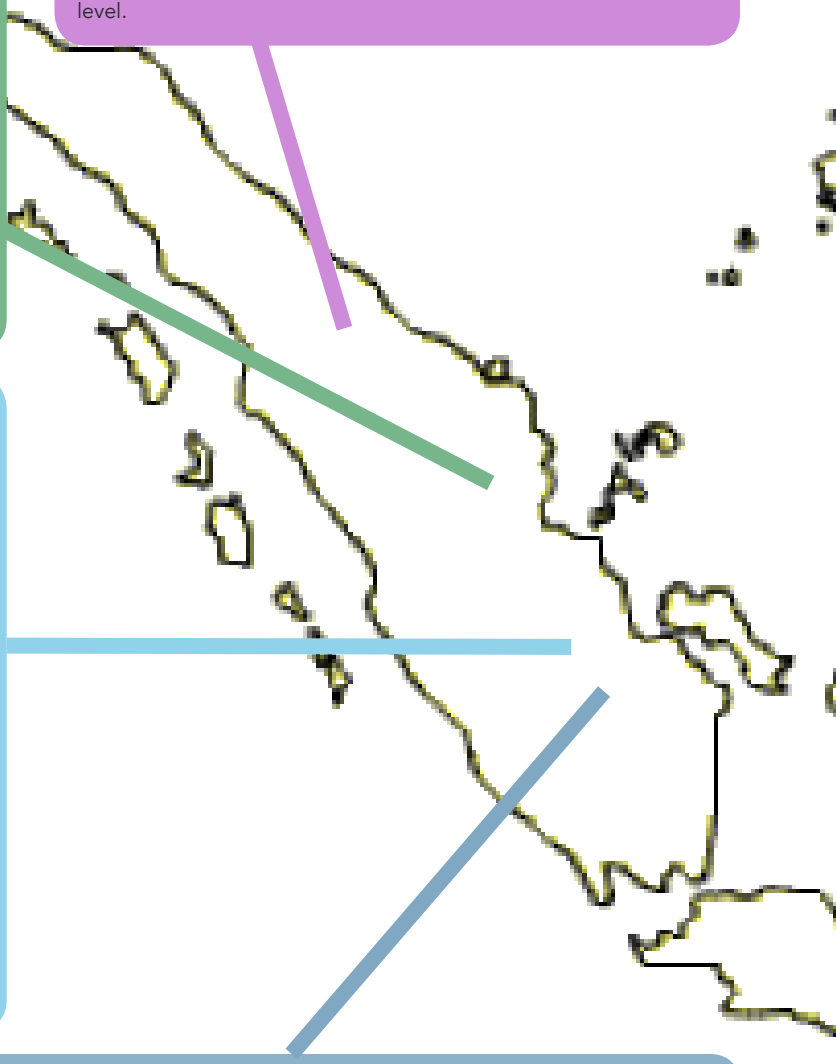
Riau

Location: The Riau location is peri-urban, which is 6 hours from the district capital. The location is very near a town which has a modern market with cafes, karaoke, variety of shops and a hospital.

Livelihoods: Most families either own or work in palm oil plantations or call themselves 'small entrepreneurs' (owning kiosks). Some men work as drivers or in factories. The location has electricity and phone signal.

Social: The area is a Javanese trans-migrant settlement from the 80s, but also has some Sundanese and Medanese, and the vast majority of the population follows Islam with some Christian households.

Facilities: The village has a puskesmas and schools till senior high level.



South Sumatra, peri urban

Location: The South Sumatra location is 1+ hours' drive from the district capital. The village has recently seen an increase in adolescents sniffing glue and many parents are worried about this.

Livelihoods: While people say their traditional livelihood is changing, with many families, particularly young men, working as traders or street vendors in urban cities and also in Jakarta; families still own farmlands where they plant rubber, sugarcane and palm oil. Some of the men work as ojek and truck drivers in the general area. The location also has some company-owned palm oil plantations operating since 10 years.

Social: Native Pedamaran people who follow Islam

Facilities: There is a puskesmas with overnight facilities, pustu, schools (both private and government) and many kiosks in the village. The village also has electricity and decent phone signal.

South Sumatra, rural

Location: The second South Sumatra location is 3+ hours from the district capital.

Livelihoods: People are farmers and grow palm oil and rubber. There are two company-owned palm oil plantations in the area, established in the 90s and most palm oil farmers sell their harvest to one of these. Some of the men and women also work as labourers in the company-owned plantations. Rubber farming in the area started from early 2000s, but as the price has decreased in recent years, most farmers are having difficulties paying off bank loans which they took out to buy farmland.

Social: Rural with Javanese, Sundanese and Maduranese trans-migrants and some native Pedamaran. Many of the initial trans-migrants left the village when their two-year government subsidy ended. Most of the people follow Islam and a few households are Buddhist and Christians.

Facilities: The village has a poskesdes and schools (primary and junior high school). The nearest puskesmas is in the neighbouring village.

West Kalimantan, peri urban

Location: The West Kalimantan location is peri-urban and 1+ hours from the district capital and 40 minutes walk from the main highway.

Livelihoods: Most families describe themselves as farmers and grow rubber and vegetables like long beans, cucumber, corn, durian which they also sell. There are also some fishermen and people working on one of the two company-owned plantations in the area

Social: Majority are Catholic with some Muslims and Protestants.

Facilities: Most of the village facilities (village office, agriculture office, puskesmas, schools (kindergarten through to senior high), and a small market), are located near the highway at least 30 minutes away. The village has a posyandu which opens once a month, a village hall and a newly constructed health clinic. Electricity with power-cuts in the afternoons.

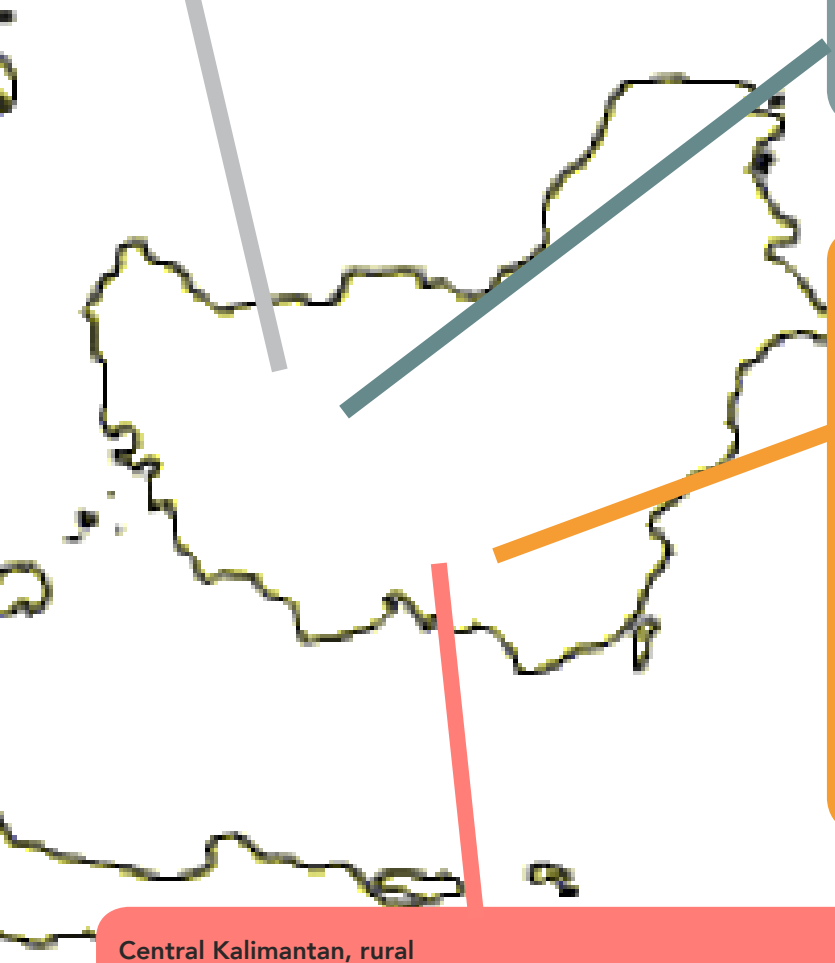
West Kalimantan, rural

Location: The rural West Kalimantan location is 4 hours by boat from the district and a further 1+ hours walk.

Social: Most families are Dayaknese with some Javanese trans-migrant families; mostly Catholic, Christian and a few Muslim households.

Livelihoods: People have been farmers for generations and grow paddy, vegetables and rubber. As the village is very close to the Malaysian border, men will go there to work for additional income when the rubber prices are low. People also own kiosks and some men work as construction workers.

Facilities: As the larger village has been recently split into smaller villages, there are two village offices, a kindergarten and a posyandu; but people have to go across the river to the sub-district for the market and schools. There is no electricity in the village and some households have installed solar panels on their own initiative.



Central Kalimantan, Peri urban

Location: The Central Kalimantan location is peri-urban, located 2+ hours from the district.

Livelihoods: Livelihoods are diverse with people farming paddy for own consumption, owning kiosks, swallow nest cultivation, some fishermen and working as palm oil plantation workers in one of the seven company-owned plantations nearby. The village is sometimes referred to as the 'swallow city' as many families in the area have constructed buildings for swallow nest cultivation.

Social: Majority Banjar and Dayak people who follow Islam.

Facilities: It has the sub-district office, a puskesmas, sector police (Polsek) office, a thriving market and several schools (Islamic and State) till senior high level. The location has 24- hour electricity and good phone signal.

Central Kalimantan, rural

Location: The second Central Kalimantan location is rural, about 2+ hours drive from the district and a further 1+ hour travel by boat.

Livelihoods: People grow paddy, rubber and fruits like watermelon and people say palm oil cultivation is slowly picking up in the past few years. There are also a few families that harvest swallow nests and these are the ones considered rich. Many men work as gold miners outside the village, some work as construction workers in the province capital and some others in the company-owned palm oil plantation in the neighbouring sub-district.

Social: The village is a trans-migrant settlement where people from Java, Bali, Lombok and Bima moved in the early 90s. Many of these early trans-migrants have since moved back and the village has a lot of abandoned houses.

Facilities: The village has a pustu, a primary school and a village office. People have to travel a further 30+ minutes to the sub-district for the puskesmas and high school students commute daily to attend school. The village also has electricity with power-cuts from morning till early evening.

FINDINGS

FINDINGS

3.1 WHY PEOPLE THINK FIRES HAPPEN?

Across locations people say there are two kinds of fires: ones that are started on purpose, and the others that start accidently. The intentional fires are to clear and open up new plantation land (people's own or company land) and to clean/clear people's existing farmland each year to plant a new crop of paddy or vegetables.

When talking about intentional fires, people make distinctions about different ways to prepare the land based on the crops they grow on these lands. Land that is used to grow rubber, palm oil and fruit trees are cleared by burning initially and only need periodic weeding and fertilising. Planting paddy and vegetables means the land has to be cleared every year before replanting, which is mainly done by burning. Farmers in all locations say that burning the land to ensure it is fertile and ready for planting is a technique they '*have practiced for generations.*'

In the rural Central Kalimantan (C Kalimantan), peri-urban South Sumatra (S Sumatra) and both West Kalimantan (W Kalimantan) locations, where farmers practice shifting cultivation for paddy, the typical way is to transition from one planting area to another before returning to the same area in a subsequent year as planting paddy in the same land each year will lead to a reduced harvest. Paddy farmers say that slashing and burning to clear the land every year is the traditional way of farming as it ensures that the land remains productive. But most agree that it is hard work, as the process to find and clear new land for cultivation is a long one and farmers sometimes spend days looking for the right kind of land to clear. A land which has been left fallow for a few years is considered fertile for planting.

1

Slash-and-burn is part of our culture

'We have been doing shifting cultivation for years. This is our culture. This is not just a farming technique for our community, but is embedded in our lives. We see this as a process. We start by looking for a land to open. This takes us time, as it has to be a land that has been left uncultivated for at least a year; a land with big trees is usually a good start. We cut down all the big and small trees and then burn them. Burning is needed to fertilise the soil. Then along with everyone in the village we start planting. The planting is known as *menugal* in our local language. When we do *menugal* we help our neighbours and our neighbours will help us *(gotong royong).*

When we harvest in April-May, the paddy is kept in a hut and we wait for it to be a sunny day before we bring it to our homes. We feel secure once we have harvested our paddy. It means that at least we can eat. With leaves or fish, it doesn't matter. We have our paddy.

After we bring our harvest home, we celebrate *Gawai.* The whole Dayak community, wherever they are, celebrate *Gawai.* It is the celebration of our harvest. By celebrating *Gawai* we also put look forward to the new planting season. For us, this is not just farming. This is our life.'

Farmer, rural W Kalimantan

The tradition behind slash-and-burn is important for paddy farmers in W Kalimantan. It is custom to invite neighbours to participate in the burning, planting and harvesting of each other's land. Since everyone works together to support each other's harvest, women we talked with said it would be considered taboo to sell their paddy as it would show disrespect to those who had helped them.

Table 2: Seasons and agricultural cycle activities

Province	Number		Agricultural cycle activity	
	Dry	Wet	Dry	Wet
C Kalimantan	June-August	September-May	Harvesting (paddy) Clearing and preparing the land (usually by burning) for planting paddy	Planting paddy seeds (start of wet season Spraying pesticides on paddy.
Jambi	May-September	October-April	Harvesting paddy Preparing land (clearing and burning) for planting paddy Planting maize	Planting paddy seeds Weeding paddy and maize
Riau	March-August	September-February	Preparing and clearing land	Planting palm oil trees
S Sumatra	April-September	October-February	Harvesting paddy Clearing and preparing land for planting paddy Sapping rubber	Planting paddy seeds Harvesting palm oil fruits. Palm oil trees produce more fruits during wet season as they need more water
W Kalimantan	March-August	September – February	Harvesting paddy Clearing and preparing land for planting paddy by burning	Planting seeds-paddy vegetables and maize (at the start of wet season) Weeding Harvest vegetables and maize (mid wet season)

Even in locations where people grow rubber or palm oil, they told us when the time comes to replace old trees (twenty five to thirty years for palm oil trees and thirty to thirty two years for rubber), burning is the most cost effective means to do this, because *'the only way to get rid of the roots is by burning'* (farmer, rural C Kalimantan).

People say the reasons they continue to practice slash-and-burn are because it is, *'Practical, quick, and the land will be fertile'* (farmer, rural S Sumatra). Burning clears the land, reduces its acidity and fertilises it. Farmers believe that buying fertiliser is expensive and as most paddy farmers say they burn the land (either to open new land or to clean the land of vegetation) every year to plant paddy, they think adding fertiliser is an additional expense which is unnecessary as the land is already fertile from the burning.

Though most farmers in the rural W Kalimantan location clear new land for planting every year, some told us they continued to plant on the same plot as finding new land for planting was a '*tiresome process*'. While some of these

These women are cooking the food to share following *menugal* (reciprocal land clearing and planting)

2

Paddy sonor - a low intensive way to grow rice

Near the village is 1,200 hectares of 'traditional' Pedamaran land. Every year during the dry season, *'paddy sonor'* (low labour and cash investment planting technique where farmers simply set fire to clear land and spread paddy seeds) is done on this land. Indigenous people burn large areas of unused community land and then spread rice seeds. People say this technique is easy and does not require fertilisers or pesticides. Some incomer Javanese have started to do this as well and say it is not difficult to get permission from the locals to use some of this land.

Rural S Sumatra

3

Alternative to slash-and-burn; high yields but labour intensive

'My father' (who is a Christian priest) went to a forty-days 'organic farming' training given by the church. The training focused on alternative farming methods to slash-and-burn and trainees were taught to make natural/organic fertiliser. The trainers from the University of Indonesia hoped he would grow his own paddy and the congregation would learn by example. He said he tried this for a year and production was almost two times higher. He even trained a few more people in the village, but said they kept going back to traditional farming, probably because it takes time to prepare the natural/organic fertiliser. He hasn't tried alternative farming this year as he has his church and school activities (where he teaches sports) keeping him busy.

Rural W Kalimantan

farmers used herbicide and fertiliser on their land once a year (instead of burning), others said they would clean this land of vegetation by burning. In the rural C Kalimantan location, where there are yearly floods, some women farmers told us that fertilising the land would mean extra costs and it '*wouldn't work anyway, because the flooding would wash away the fertiliser*' and that is why they choose to burn.

While people acknowledge that mechanical means can be used to clear new land for farming, '*only companies can afford alternate ways (*to burning)' is a common sentiment echoed by different people across locations. Farmers in Riau and rural W Kalimantan say that these are expensive (costing IDR 500,000 to rent for an hour) and most small farmers are unable to afford these. In peri-urban W Kalimantan some farmers explained about 'stacking,' where trees are felled and buried under the soil and the land then used for planting. However, the cost for these options would be huge with people having to pay IDR 20 million for two hectares (if heavy machinery was used) and IDR 50 million if the felling and 'stacking' were done manually. In contrast, clearing the same amount of land by burning costs the farmer in the region of IDR 5 million, mostly for buying gasoline (IDR 1.3 million for four 30-litre jerrycans of gasoline for two hectares of land), paying the labourers to guard the fire and for their food and cigarettes. If, on the other hand, this is done reciprocally through *gotong royong,* (the practice of reciprocity and mutual support) the farmer does not pay those guarding the land at all, but only provides them with food and cigarettes (W Kalimantan).

Palm oil companies, on the other hand, are able to afford the heavy machinery and in peri-urban C Kalimantan and W Kalimantan, people told us that initially when some companies came to the area (about seven to ten years ago), they used excavators to clear the land. This, however, does not seem to be a common practice across all locations as people in other areas say that initially companies had burned land to clear it to plant palm oil trees.

Though companies too were opening new land by slash-and-burn earlier, they had become more cautious recently. People said this had happened in the last one year after local authorities had begun to enforce the government's 'no burning' regulation more strictly (discussed in detail below). Some farmers we met thought that companies were getting around government regulations on burning land and cutting costs on the excavators (for opening new land) by hiring men to set fire to the company land to make it look like an accident. In peri-urban W Kalimantan, we met a man who claimed to have been paid by a company to set fire to company land. Another

4

Burning is a cheaper way to clear land

One farmer I spoke to said he had employed twenty men to clear six hectares of land by burning. Each man was paid IDR 100,000 and the land was cleared in one day. He said if he had rented an excavator he would have to pay IDR 1.7 million for clearing each hectare (without stacking), and he would still have to burn the felled tree stumps.

Rural S Sumatra

Ash from burning the field is considered excellent fertiliser

group of men in peri-urban C Kalimantan had heard rumours that one of the companies in a neighbouring area had started fires on a piece of unproductive land owned by the community and this fire had spread to the company land. The company started planting on that piece of land soon thereafter.

5

Different clearing methods suit different land types

Most people in my village talked about two different kinds of land, one where slash-and-burn is done and another where fertilisers and herbicides are used.

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The village head came to my 'house' with a fertiliser sprayer. When he left, I asked 'my father' why the village head was using fertiliser on his paddy land when others (including 'my father') had said there was no alternative to burning. He told me that the village head's land was '*different*' and did not require burning, so he just used fertilisers. He said the land was different because it was not peatland but had *'regular soil'* and was *'wetter'* compared to other farmers' land. This land could be used for planting paddy without burning and some farmers used herbicides and fertilisers on this kind of land.

--

I was talking to a group of men and asked if it was possible to burn the land once in the beginning for planting paddy and then use fertilisers every year. They shrugged and said no one had tried it before.

Rural W Kalimantan

In peri-urban W Kalimantan, one HHH father shared an incident that had happened earlier this year. The palm oil company expanded by burning new land but some rubber plantations owned by individuals were also burned. Even though many people were certain the company had done it intentionally to clear its land, the company blamed a farmer for the fire so that they would not have to compensate him and the other farmers whose rubber trees were burned.

6

Sponsoring 'accidental' fires

My 'grandfather' told me that the company sometimes hired young men who used mosquito coils to start a fire on company land. By the time the fire catches, these men have run away. It might look like they are working on their own, but actually they are scapegoats. If they get caught, the company will deny knowing them.

Riau

Where fires have happened on company owned plantations (peri-urban S Sumatra and C Kalimantan), people say, some of these are cases of *'revenge burnings'*. In peri-urban C Kalimantan, we talked to some young plantation workers who explained that often it was the community who set fire to the company land, as they were not paid the promised amount for the land they sold to the company. One other man recalled that people from a neighbouring village had set fire to some machinery in the company plantation as the company had cleared more land than they had purchased from the community. Others blamed fishermen who fish in the swamp for starting fires on company plantation, as their fishing areas had been encroached upon when the company took over this land.

While people think the accidental fires are usually the bigger ones, *'nobody knows'* is a feeling that is shared across locations when they try to explain the cause and location of these fires. One of the most common reasons people did note, however, was fires from cigarettes. Across the locations, they say that fires might start in the forest and peatland because men are careless with their cigarettes and often throw them away without bothering

7

Careful controlled burning

'My family' cleared 2 hectares of land last year for planting palm oil. The whole process (from clearing the land by slashing and burning to planting the saplings) took ten men three months. 'My dad' said the fires were carefully controlled and did not spread. He spent IDR 20 million to clear and plant on those 2 hectares. He says for fires to be controlled, you need to be willing to spend time and money, but companies might not want to spend so much. *'They have hundreds of hectares, after all'*.

Jambi

Company land which has been cleared by burning in Riau

8

Fires set as revenge

The neighbouring village officials sold off some land that was under their administrative control to the palm oil company. This land was actually owned by the people of my village. 'My dad' said some people from the village set fire to this land in revenge.

Peri-urban S Sumatra

9

Cigarettes cause fires

We were sitting outside a *warung* when 'my father' started telling me about how it was careless people throwing cigarettes in the forest that caused the big fires. When it was time to leave, he threw away the cigarette he was smoking without putting it out.

Researcher observation, C Kalimantan

to put them out. In peri-urban C Kalimantan, a *warung* owner told us that a fire had started in the forest behind the junior high school last year because *'someone had carelessly thrown away his cigarette without putting it out'.*

Likewise, some junior high school students in peri-urban S Sumatra thought that last year's (2015) fires started in the company plantation because of cigarettes thrown by plantation workers, but one former DPRD (*Dewan Perwakilan Rakyat Daerah*, Regional Representatives Council) member denied this saying it was '*nonsense*' and it was the company who hired people to set fire to neighbouring land which then spread to the company's. In peri-urban C Kalimantan, a policeman shared that people had been prohibited by a palm oil company to fish in an area near its plantation (on the peatland) as they were worried about cigarette fires.

Cigarettes were not the only apparent cause of accidental fires. In Riau, some people had heard that a fire had started on the peatland because some fishermen had used mosquito coils to keep away the mosquitoes while they were fishing and these coils had started a fire.

In all locations, adults constantly spoke of the risk of fires catching and spreading faster in the dry season. In peri-urban W Kalimantan, a few women thought that fires spread in the dry season when people were careless about putting out the smaller fires that they had started for outside cooking or to burn trash. In rural C Kalimantan, several farmers explained to us that sometimes fires happen because people do not coordinate their burning. In such cases, lots of small areas that were burning might cause a bigger fire if the wind changed direction. One BPD (*Badan Permusyawaratan Daerah*, Village Deliberation Body) member said that it was easier for fires to go out of control in the dry season because farmers often did not clean the fallen leaves and twigs that surrounded their planting areas.

Table 3: Family/Companies' dependence on peatland

Location	Individual/family doing peatland agriculture	Companies' dependence/use of peatland in the area	People working in nearby companies
Peri-urban S Sumatra			
Rural S Sumatra			
Peri-urban C Kalimantan			
Rural C Kalimantan			
Peri-urban Kalimantan			
Rural W Kalimantan			
Jambi			
Riau			

Legend: **None** | **Few** | **Some** | **Many**

All of the study locations were to some extent dependent on peatland, either through directly cultivating it or by working at company plantations, which were on peatland (see table 3). Almost all the farmers we talked to stressed the dangers of peatland fires saying that it was extremely difficult to do controlled burning on peatland as the fires spread very fast. Some of us were told about peatland burning on its own just from the sun, while others said it was possible for peatland to catch fire from the friction created when fallen twigs rubbed together (peri-urban C Kalimantan and Jambi). Everywhere, people spoke about peatland fires that had burned under the surface for days and how these were not like regular fires that could be put out by pouring water over them so *'when it is the peatland that burns, all we can do is watch'* (woman farmer, rural C Kalimantan).

In Riau, older men told us that small farmers and companies had begun to cultivate the peatland (more than an hour's walk from the village) as there was no unopened land left near the village. This, they said, was why recent fires were harder to control. In peri-urban S Sumatra, most farmers did not cultivate peatland because they '*understand that it is dangerous*', but thought the companies were less aware or even ignoring this and had started cultivating on the peatland (about six hours away by a vehicle). Similarly, in rural W Kalimantan, one HHH father told us he did not burn the peatland for planting because the fires could spread fast, while the other men who were there laughed it off and said that they themselves *'will burn and then pour water on the peat to put out the fire.'*

While most people across locations associate the bigger fires with accidents, there were a few others in peri-urban S Sumatra and Jambi who seemed to think the intensity and frequency of fires had increased after palm oil companies started their plantations. In S Sumatra, smallholders had been practicing slash-and-burn to clear their land for planting rubber, paddy and palm oil for generations, and they said their burning had always been done in a controlled way. It was only after the companies came into the area and started to plant on the peatland that the fires started to occur frequently. One HHH father claimed that one reason for this was that palm trees take up a lot of water and this had: i. caused the land to dry up and ii. affected the rice production because of the decrease in the water level.

10

Unclear who is to blame

I was talking to a few officials at the sub-district office who were telling me that it was the smallholder farmers who started the fires. When I mentioned to them that many farmers in my village claimed that the bigger fires happened after the companies came into the area, they seemed to change their tack and agreed that it might be the companies who are responsible for the fires.

Peri-urban S Sumatra

'Fires are started by the companies but the community is blamed for it'

- HHH father, farmer, Riau

11

Vested interest not to lay blame

I asked a woman whose husband worked at the nearby company-owned palm oil plantation if she thought the companies started the fires. She said she did not know if she should blame the companies as her family's main income source was her husband's wages from working as a labourer at the company.

Riau

Many in peri-urban W Kalimantan and Jambi say that when the palm oil companies first arrived in the area, they constructed canals to drain the peatland of water. Though this was done to plant palm oil trees, some men in W Kalimantan maintained it caused the land to dry out and become more susceptible to burning in the dry season. Other men echoed a HHH father from S Sumatra and said the palm oil trees absorbed a lot of water and dried out the peatland which in turn led to fires catching and spreading faster on peatland.

In Jambi, people make distinctions between the older canals which were built as part of the settlement plan for the trans-migrant village (mainly for irrigation and fishing), and the newer ones that were constructed to drain peatland to plant palm oil. Some men we spoke to criticised the companies for building these canals and thought this was why fires started and spread in

Canals dug to drain peatland before planting palm oil trees are blamed for drying out the peatland

the peatland faster. It was felt that these canals had also made paddy planting difficult as the land was drier.

3.2. PEOPLE'S EXPERIENCE OF FIRES AND HAZE

None of our study locations had experienced significant fires or haze this year (2016) and people across locations referred back to their experiences in previous years when talking to us. In general, most seem to have resigned themselves to the yearly fires and the haze and are quick to add that these are worse in the years when the dry season is long. Except for one of our HHH fathers who said that smallholder farmers were *'responsible for contributing to the haze (through slash-and-burn)'*, we were repeatedly told that it was not the small fires (from slashing and burning their land) that caused the haze, but the bigger, mostly accidental fires in dry seasons.

We heard from people in different locations how it was commonplace for bigger fires to start in a prolonged dry season[3]. Time and again, farmers would emphasize that they were extra careful when they burned their land during the long dry seasons. Some farmers in Riau noted that last year fires in the peatland could not be put out even though helicopters sprayed water from above and that *'it only created more haze'.* The fires had stopped only after it began to rain, ending the dry season. In the rural S Sumatra location those we spoke with made comparisons between smoke and haze, saying that '*haze happened in the long dry season* (like last year)' and smoke was something that occurred regularly when they slashed and burned their fields. Another group of people in the same location said that the lower amount of haze this year was because of the shorter dry season.

In Riau and peri-urban W Kalimantan, where there had been no big fires close to the villages we visited in recent years, people explained the reason for this. In Riau, an older man who had migrated there in the 80s recalled that the area had been cleared of forests, first by the government to create a space for trans-migrant settlements, and later by palm oil companies for plantation. He and a few other older men insisted that as there were no forestlands left in the area, big fires did not occur nearby. Bigger fires, according to them, happened in the peatland (about one hour away) that people and companies had begun to cultivate.

In the W Kalimantan location, which is near a protected forest area including a hill, some men said the worst of the fires had happened in the last long dry season in 1997/98 and most of the forest around the hill had burned. These men described the fear they felt when they saw large burning boulders and tree trunks fall from the hill to the ground below. They further explained that since then, villagers were careful about starting fires near the area, not because of any regulation, but for their own safety.

Two of the eight study locations had incidences of large fires last year (2015). The fires in Jambi were at a distance from the village, mostly in the protected forest area near company owned palm oil plantation and logging areas, and some near community/individuals' lands. The fires there had lasted for three months, and one of our HHH families said they could see '*an orange light (*from the fires*) burning at night'.* People told us that four kilometres of unused community land, owned by one of the villages had been burnt in the fires.

3 It was noted during the sense-making workshop with the study team that the years where most of the bigger fires had happened in our study locations coincided with the years that had had a prolonged dry season.

In rural C Kalimantan, the fires had been in and around the village and while people seem unsure of where these had started, a common guess was the forest. Several adults told us that in the three months that the fires lasted, two houses had burnt down, but there had been no casualties. People said the fires had *'jumped across roads and canals'* and the fires on the peatland *'also moved under the ground'*. The fires had also spread to people's fields and had burned their rubber trees. Though some families had replaced the burnt rubber trees with palm oil saplings, as these can withstand fires and floods, a few had yet to do so. Reactions from people were varied depending on the significance of what they had lost. Some farmers whose paddy land (then fallow) had burned did not seem very worried and one said *'when we have big fires like last year, that is when we get a big harvest because the land is still fertile from the last fire'*. However, one father was disappointed on losing all his rubber trees and said these represented his savings which was to be used for his child's higher education, and now he was unsure of *'what he was going to do'*.

In other locations there had been smaller fires on individual land (accidental fires from slash-and-burn that had spread) or fires on company land. In rural S Sumatra, some fires had spread when farmers were burning their land for clearing/cleaning. While the fires had destroyed their rubber trees and some had even spread to the company land, a few farmers told us that when the fires had spread to the unopened/uncultivated community land, it had been *'a blessing in disguise'* as all they had needed to do was spread the paddy seeds after the fires stopped. They referred to this practice as '*paddy sonor'*, and said that this kind of paddy requires very little work.

Those people who had lost their crops to the fires said they could not go to the police because they did not have evidence of how the fire had started. Another common reason was, as one farmer who had lost a hundred hectares to the fires last year put it, '*if I had gone to the police, they would have listed me as a suspect'*.

While all locations experience haze, more or less, as a yearly phenomenon, the more severe haze was usually associated with the longer dry season like the one last year. People, however, did not particularly think that the haze had been getting progressively worse in recent years. In fact, they seemed to think Jakarta and other cities were worse off because *'people there inhaled pollution daily'*. Most also seemed to think that the pollution in Jakarta caused more harm because it was all chemical, and '*not like the haze here which was from burning trees and land*'. **Table 4** shows what people think about the changing intensity of the haze.

Although many people agree that last year's haze was heavier than usual and lasted longer, we had a few young men in W Kalimantan and Riau saying the haze had been as usual but reported in the media as a serious issue because *'Jakartans were bothered by it'* (HHH brother, Riau). Two university students we met in Riau thought that the haze had been '*normal*'

Table 4: Is the haze getting worse?

Location	Is the haze getting worse?	How long have companies been in the area?
Peri-urban S Sumatra	Lighter haze before 2015	No companies near the village
Rural S Sumatra	Same as before	1995
Peri-urban C Kalimantan	Worst haze in 1997 and 2014/15	2002
Rural C Kalimantan	Worst haze in 1997 and 2014/15	2009
Peri-urban W Kalimantan	Worst in 1997, 2015 haze associated with less trees/low water	2005
Rural W Kalimantan	Same as before	No companies
Jambi	Mostly same as before	Early 2000 and 2009 (one company)
Riau	Few people saying yes	2000

and '*it wouldn't have been made into a big deal if it hadn't spread to Malaysia and Singapore'*. Some other men in W Kalimantan also complained about this saying *'only Indonesians got blamed for the haze though Dayaknese in Malaysia burned their forest as well'*.

'It (haze) smells like burning trash'

- Woman, Riau

Some shared that they can tell how severe the haze is by its colour, with some men and women in both C Kalimantan locations telling us that they were not worried *'as long as the haze is white, we're okay'*. In peri-urban C Kalimantan, we were told that during the haze last year, people could only see up to five metres, but this did not bother them much because *'the haze was still white and not like the orange coloured haze in Palangkaraya'*. Likewise, people in rural C Kalimantan knew last year's haze had been more severe because it was *'yellowish'* and tasted bitter.

Even in those locations where people said last year's haze was more than usual, the haze cleared by mid-morning (around 9/10am), intensifying again in the evening in some locations. **Table 5** shows a ranking of the locations based on the duration of the haze they experienced last year. The ranking (column 4) was done by team members after the field study and is based on their conversations with various people in all study locations.

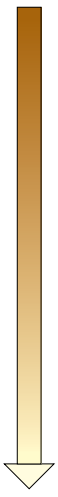
One common reason people gave for the haze clearing up during the day was that the winds were stronger then and '*it blows the haze away'*. In peri-urban C Kalimantan which is on the bank of a river, older men and women told us they were fortunate that the area got a lot of wind and that the haze blew away by 9am each morning. They explained that even when there had been fires in a company's plantation nearby, the area did not get a lot of haze last year.

In peri-urban S Sumatra, people seemed to think that though South Sumatra was the *'biggest exporter of haze'*, they (villagers) were not affected by it because *'the wind blows it to another direction'* and because of this *'there are more* (haze-related) *problems in Palembang'* (Palembang is 90 km directly north). In rural W Kalimantan, where there had been no big fires around the village last year people believed that the wind had brought the haze to their area, *'probably from Central Kalimantan'*. A few other men and women in rural S Sumatra thought that the sun neutralised the haze, which is why the heavier haze was mostly in the early morning and night.

'We are okay, but maybe people in the city are worse off', was a sentiment that was echoed by adults and children alike in all locations. In

Table 5: Haze calendar

Location	Duration of haze in 2015	What time is it heaviest?	Haze Ranking
Jambi	3-6 months	6am-9am Night	
Rural S Sumatra	3-5 months	4am-9am 5pm-6pm	
Rural C Kalimantan	About 4 months	After 4 pm until 10 am	
Peri-urban S Sumatra	3 months	4am-10am 3pm-4am	
Riau	2-3 months	Morning	
Peri-urban W Kalimantan	About 2 months	4am-8am	
Rural W Kalimantan	1-2 months	4am-8am	
Peri-urban C Kalimantan	About 1 month	Early morning-9am	



12

Boys aren't supposed to be afraid of the haze

I was talking to some young boys in my village when one boy told me he was afraid of the haze because he couldn't see that well. The other boys laughed and made fun of him because he is a boy and is not supposed to be afraid of the haze.

Rural W Kalimantan

most of our conversations, people talked about last year's haze like it was farther away, *'not here'*, and always identified other areas, mostly cities, as being more affected by the haze. They repeatedly stressed that while they had haze last year, it was a lot less than what was faced by city people.

In Jambi, where some people said the haze lasted for almost six months last year, they still thought the city had it worse and said that they '*did not think much of the haze here* (village)'. A few old women we spoke with in rural S Sumatra seemed to think that the haze in the cities is worse as they have tall, concrete buildings which trap the smoke. This was also echoed in other conversations with older men and women where they told us that areas away from the cities were safer because there were a lot of trees that absorbed the haze and, '*it wasn't like the cities, which only had buildings*' (W Kalimantan and S Sumatra).

3.3 EFFECTS OF FIRES/HAZE

'If we're able to see, then it must be fine.'

– People across locations

Visibility

When people talk about the effects of the fires and haze last year, they say what was most affected was their visibility. Across locations people of all ages told us that unless the haze affected their visibility, they '*just ignored it*' (man, peri-urban S Sumatra). While some men and women in the rural W Kalimantan and peri-urban C Kalimantan locations said that they could see up to five metres when the haze was very thick (in the mornings and in some locations, evening), in other locations they would point to a certain distance (usually two to five metres) when explaining their limited visibility during the haze last year.

13

'I hurt my knee because of the haze'

One small girl I spoke with said that last year she had fallen down on the bridge because she couldn't see very well. She said that the haze had hurt her knee…because it had made her fall.

Peri-urban S Sumatra

'I couldn't see the stars at night (during the haze)'

- Primary school girl, rural W Kalimantan

People told us that poor visibility was a concern for those using motorbikes to get around as there was a higher likelihood of accidents. In peri-urban W Kalimantan, some men told us that there had been a few motorbike accident related injuries, particularly on one day when the haze had been severe. Likewise, many high school students in rural C Kalimantan said that on the days that schools were still open the haze made it harder for them to travel (by motorbike) the eight kilometres to reach school. It took them more time than usual (during normal weather conditions, the journey takes them about thirty to forty minutes by motorbike), as they had to be extra careful to avoid accidents. In rural S Sumatra, we were told that there had been more accidents on the highway last year throughout the duration of the haze. People also talked about needing to turn on their motorbike lights to avoid accidents in the morning because that was when visibility was the lowest.

14

'It was hard to see in the haze'

The children we spoke with in peri-urban C Kalimantan mentioned some coughing and eye irritation during the haze. Mostly what they noted was that it had been hard to see.

C Kalimantan team

'It was difficult to play soccer with my friends during the haze. I could not see where the ball was'

- Primary school boy, rural W Kalimantan

Apart from vehicle accidents, people also explained that poor visibility caused some restrictions in mobility with many families having to adjust their daily routine slightly on days when the haze was heavy. In Jambi, peri-urban C Kalimantan and both S Sumatra locations where the haze usually cleared up by mid morning, men and women told us they started their activities (farming in Jambi, rubber tapping and salting fish in S Sumatra) at around 9am after the haze cleared. In Jambi, women also came back home early from the fields so as to avoid the worst of the evening haze. In peri-urban S Sumatra, the Village Head shared that as reaching anywhere during the haze took more time than usual, he had to adjust his travel time every time he wanted to go somewhere.

Transportation of any kind was also said to be challenging when the haze was heavy. In peri-urban C Kalimantan, where people mostly used river transport, some men said it had been difficult for them to go to their fields across the river on some days. We were also told about an elderly man who fell ill during the haze but it had been difficult for his family to take him to the *puskesmas* across the river because the haze had been heavy. In rural W Kalimantan, one neighbour remembered taking his ailing three-year-old daughter to the hospital in Sintang during the haze. He called the whole car trip *'a nightmare'* as the visibility had been extremely low and the driver had to drive very slowly to avoid accidents.

Livelihood and economy

In addition to the damage by fires to their crops, people in different locations shared that the haze had had some impact on their livelihoods as well. In peri-urban W Kalimantan and Jambi, families who grew vegetables like long beans and chillies told us that many of their crops had failed last year. Some others told us that there was a 50% decrease in produce last year and that the quality too was lower. The haze last year had obscured the sun, and they thought the plants did not get as much sunlight as needed to flower. However, no one in either of the locations mentioned that this decrease in produce had affected their diet in any way. Some women in Jambi also expressed that they were struggling to get by as their rice harvest had been less than usual because of the haze. We also heard that because of these crop failures, some people had begun working at the company-owned plantations to supplement their income.

In Jambi and rural S Sumatra we heard that for most of this year the palm oil fruit harvest had been low, with farmers in Jambi telling us that the harvest had been 10% of normal and

15

Haze affects my business

After finishing his senior high school, my 20 year old 'brother' started his own small workshop where he 'airbrush' paints motorbikes. As the paint needs sunlight to dry, all of his work is done outdoors.

The haze last year affected his business because the lack of sunlight meant the paint on the motorbikes would not dry. Also, as it was difficult for him to work outside during the haze (because of the smoke), he could not do as much work as usual.

He then thought of building an indoor studio and installed it with a bright lamp to dry the paint. There was no other option, he says, as he '*couldn't work for longer periods of time outdoors* (because of the haze) *and yet had to finish all my orders.*'

Riau

The studio built so work can continue during haze

the production had only started to normalise recently. In rural S Sumatra, farmers told us that the palm oil trees had not been producing much fruit for six months this year because of 'trac' or 'pohon setres' (tree stress). Most think this is because of the long dry season and the haze last year. Some farmers who had bought their land with bank credit were also worried that this decrease in palm oil harvest would make it difficult to make regular instalment payments.
In rural S Sumatra rubber farmers mentioned the heavy haze had been of concern to them because if they went to the field after the haze cleared up mid-morning, the quantity they collected was lower as the ideal time to tap rubber is when the temperature is low. Some other farmers like one of our HHH in the same location along with some farmers in rural W Kalimantan and Jambi said this was not a problem for them as they would go out extra early in the morning to tap rubber and used flashlights to do so.

Except for two instances of *warung* owners saying the income from their *warungs* had decreased because, *'I had to spend time watching my land to ensure it did not catch fire, so I closed it (warung)'* (man, rural S Sumatra) and *'people just did not come as often during the haze'* (HHH family, peri-urban W Kalimantan), we heard that markets and kiosks usually remained open during the fires and haze. In Jambi, one HHH mother who sold fried bananas said it had been harder than usual to find bananas during the haze. Though she paid the usual price when she was able to buy them, she said these had been smaller in size. In peri-urban C Kalimantan where there is a weekly

People say rubber flows best at low temperature so had to start work earlier during haze

Travelling vegetable hawkers in W Kalimantan could not visit during heavy haze last year

market on Saturdays, traders and shoppers told us that the haze had not affected them much, even though they had to use river transport to get there. This was because the traders came in and set up their space in the late-afternoon/ evening before the market day and the haze had mostly cleared up by then.

16

Rubber tapping had to be earlier in the morning

My HHH mother goes to the field to tap rubber everyday at 6am taking her four-year-old daughter with her to the field. She told me she would go to the field earlier than usual during the haze, but left the toddler at home to *'keep her away from the smoke.'*

Rural S Sumatra

In both W Kalimantan locations, some families who did not grow their own vegetables told us that travelling vegetable hawkers could not come to the village daily during the heavy haze. While some bought vegetables in bulk when the hawkers finally came and used refrigerators to store these (peri-urban), others said they could not get tofu and *tempe* during this time and relied on the vegetables they gathered from the forest (rural).

17

Other things people said about the haze

The swallow nest harvest reduced and prices decreased (peri-urban, C Kalimantan)

Livestock (goats and cows) had to be tied up so they did not wander off (peri-urban, S Sumatra)

Chickens went missing (peri-urban, S Sumatra)

While people in all locations said the prices of commodities were more or less the same during the haze, one family in Riau said the prices of some vegetables had increased, *'but only by IDR 500'*. In rural W Kalimantan, one man who ran a vehicle rental business said that the price of gasoline had increased during the haze from IDR 10-12,000 to IDR 15-17,000 per litre. He said this was because the trip from Sintang took longer because of poor visibility and also because there was a shorter supply of gasoline in the city.

Health effects

'Haze is just like this rain, you can't go anywhere and you can get sick (if you go outside). *From the rain, you can get flu and from the haze, it is harder to breathe. For rain, we need an umbrella; for haze, a mask'*

– Man, peri-urban S Sumatra

Getting ill due to the haze was not a particular concern for most adult men and women we chatted with. Most people across locations did associate the haze with minor illnesses like cough and cold, but said it did not affect them much health-wise as *'we've been inhaling the haze since 1991* (when the first Javanese trans-migrant families moved to the area)' (Village Secretary, rural W Kalimantan) and *'it has always been like this'* (man, peri-urban C Kalimantan). While some men in peri-urban W Kalimantan explained that they experienced shortness of breath if they stayed out too long and one HHH mother said she felt dizzy in the morning (when the haze was heavy) and had to have some physical activity before she felt fine, they were exceptions. People seemed to think that the haze affected the health of only those adults who had pre-existing health issues like lung disease and asthma, and the elderly.

18

It was MSG, not haze

My FHH daughter has had a problem with her lungs for sometime now. She told me it was specifically bad during the haze when she had to struggle to breathe. Her mum laughed and said the struggling was from snacks and MSG and not because of the haze.

Rural S Sumatra

Women who had been pregnant during the haze told us they had not been very worried during the haze and had no specific health complaints. One HHH mother in rural W Kalimantan, who was an exception rather than the rule, told us she had experienced severe bouts of coughing because of the haze. Nevertheless, most of them had tried to stay indoors as much as possible, and as a precaution even put wet rags under the door to keep the smoke from entering (peri-urban W Kalimantan). One teacher in Riau who

Children explained discomforts they had felt during the haze through body mapping exercises

had been pregnant during the haze, however, shared that she was still going to the school, sometimes even without a mask.

In Jambi, where the haze had been particularly heavy, one young man shared that he had thought about relocating with his pregnant wife to Padang because he was worried about the effect on both the mother and baby. Ultimately he said he did not have to, as the rains finally started and the haze cleared. In rural S Sumatra another woman explained that apart from being late for her pre-natal check-up (she could not go during the heavy haze), she had faced no other problems during her pregnancy.

Despite most adults saying the haze did not affect their own health or that of their children, children of various ages across locations say they experienced some discomfort during the haze. Though symptoms varied across locations, the most common ones according to children were cough, fever, headache, dizziness, stuffy nose and throat, irritated and teary eyes. A few adolescents in peri-urban S Sumatra and Riau noted that their general chest region *'felt tight'*, while others mentioned they would need their '*nose to adjust (to the haze)*' while on the way to school in the mornings. Some boys in Jambi said they had had some trouble breathing, but it got better once they had adjusted to the outdoors. In peri-urban W Kalimantan, Riau and peri-urban C Kalimantan, children explained that whom they went to for help depended on where they were at that moment and if they were at school, they would go to their teachers. Likewise, in rural C Kalimantan, their first choice was going to their parents, but some said they would go to their neighbours if parents were not around the house. In rural W Kalimantan, most junior and senior high school students live nearer the schools at the sub-district. They either live alone or with relatives, often doing chores for the families they live with and felt it was harder to ask for help or advice in case of emergencies.

Even though children complained that they had felt unwell at times during the haze, most parents seemed to think the children had been fine. They believed that their children were strong and any health issues were minor. One family in Riau told us that when their son complained of cough last year during the haze, they simply gave him cough syrup. They said they did not take him to the *puskesmas* as *'he was strong enough to face the haze'*. In Jambi, one HHH mother said that even though the haze had been more severe last year, both her daughters (ten and four years old) were fine because they '*were strong*'. Similarly, one HHH father in rural Kalimantan thought that the haze mostly affected children under five as they did not have a strong immune system, but felt that the older children were tenacious and could cope with it.

'Children here are very strong. None of them wore a mask last year, whereas I myself was wearing one'

Teacher, rural C Kalimantan

Most families with babies and toddlers said they had taken precautions by keeping them indoors during the severe haze and as a result, the babies and toddlers had not been ill. One grandfather in peri-urban C Kalimantan told

19

TV sensationalises the impact of haze

Last year, a popular TV show for children came to the village to film during the haze crisis. As there was no haze in this village during that time, they created their own smoke for filming and tried to show how the haze had an effect on children. They made some children go to the *puskesmas* to be checked by the doctor and filmed this. While I was in the village, 'my family' and 'neighbours' kept asking me what I thought of the village. The TV show had portrayed the village as very vulnerable, while in actuality people did not think the haze had been a problem.

Peri-urban S Sumatra

20

Baby coughed for first eight months

The baby in my HHH was born at the time of the haze last year. Two weeks after she was born, she began to get skin rashes and coughed continuously. 'My mother' had stayed in the TBA's (traditional birth attendant) house for the first two months because she had felt scared to take care of the baby by herself. She said the constant coughing was '*scary*' and only stopped after the baby was eight months old. The mother and the TBA both said the baby had been ill because of the haze.

Rural W Kalimantan

21

Parents say their babies are healthy

Quite often parents whose babies were born during the haze last year would tell us to *'take a look at the baby,'* to prove to us that the baby was healthy.

Team observation

us that when his baby granddaughter had fever during the haze *'they put her inside and covered her up and she was okay'*. Another HHH family in Riau who had been concerned about the smoke causing problems for their two toddlers, said they usually covered their beds with a cloth so they did not breathe in the smoke. Some neighbours in Jambi, however, shared that two toddlers in the next village had been hospitalised during the haze, but were now fine. More or less it seemed that people felt that the reason toddlers got sick was because they had pre-existing health issues, and not because of the haze in particular.

Much of the information that adults and children get about the health impacts of the haze is from television. While some children in rural W Kalimantan had heard about haze-related illnesses from teachers and headmasters during mask distribution at school, a few others said they had heard it on TV news programmes (when fathers switched to news channels during commercial breaks), and some others who did not have TV (or electricity) at home had heard about haze causing ISPA[4] (*Infeksi Saluran Pernafasan Akut*, Acute Respiratory Infection) while watching *sinetron* (Indonesian soap operas) at *warungs* (on discussion programmes or news snippets in between *sinetron*). One small child here explained to us that haze caused ISPA, but when probed, she did not know what it meant or even knew anyone who had it. She had heard the term on TV. Children in Riau said that while they had heard about the condition of haze in Pekanbaru on the TV, the health related information was given by their teachers. Some adults in peri-urban W Kalimantan told us that since they listened to the radio frequently, they were aware when the haze was severe across the district and made sure to keep their family indoors during

22

'Just a normal thing'

The toddler in 'my family' had trouble breathing during the haze last year. He was nine months old then and had to be taken to the hospital in town. 'My mum' said the doctor did not keep him there overnight, but the family had to go back two to three times to get medicines. The doctor only gave medicines, no diagnosis and no advice. I asked her if she was worried about him if the haze came back again, but she said that it was just a normal thing.

Riau

this time. But they pointed out that the radio programmes had not specifically been about health-related impacts. In rural S Sumatra, the village office had distributed calendars to some families. These calendars had, among others, a photo of a woman who appeared to be in a hospital, which was captioned '*land and forest fires disrupt public health'*. Apart from this, there was no other information or advice about health-related effects of the fires and haze on the calendar.

In different locations, a few people we spoke to mentioned ISPA as a potential health issue from the haze. Those who had heard of people being at risk from ISPA were in most cases teachers, university students and government officials. Even though the term ISPA was commonly used, none of the adults or children we spoke to in any of the study locations said they had been diagnosed with it, or associated their or their children's symptoms (cough, fever, teary eyes, etc.) with ISPA.

Some of the health officials we interacted with said that ISPA had been a very common ailment during the haze last year as compared to years when the haze was less severe. While one midwife in Jambi shared that a few elderly people had to go to the hospital with ISPA, another in peri-urban C Kalimantan said that toddlers had been mostly affected by this as they refused to wear, or frequently took off their masks. Another *mantri* (male nurse) at the *puskesmas* in peri-urban S Sumatra explained that he had noticed parents bringing their children in for coughs and that it was '*more so than usual'*, though he did not say these children

4 Symptoms of ISPA include congestion, either in the nasal sinuses or lungs, runny nose, cough, sore throat, body aches, fatigue. More severe symptoms are difficulty in breathing, dizziness, low blood oxygen level; and loss of consciousness. Source: http://www.healthline.com/health/acute-respiratory-disease#Symptoms4

had ISPA. He shared that city people go to the hospital for small ailments, but that in the village *'people only come to the puskesmas when they are really sick'*. One nurse in peri-urban W Kalimantan said she could not remember people in the area being sick during the haze, but added that the impact would be gradual and greater over time so '*people would not know right now.'*

23

Easier to remember the food poisoning

When I asked a group of kids if they got sick last year during the haze, two younger girls said it was the *'es'* (ice) that made them sick last year. One of the girls explained that after eating a traditional sweet ice snack called *'es doger'* in front of her school, she had terrible diarrhoea and had to be taken care of by a nurse in a neighbour's home with a bunch of other kids who had also come down sick from the *es. 'Everyone had an IV,'* she said, showing me a mark on her wrist. Apparently over 100 children in my village and a few neighbouring ones came down with serious food poisoning from the *es doger* that was commonly sold near schools by a roaming motorbike seller. Although children in my village didn't remember much about the haze, many excitedly told me about this food poisoning experience. Talking with two midwives in the *pustu* later on, I learnt that this food poisoning incident had actually occurred before the big fires and haze in the area.

Jambi

People told us cases of diarrhoea had also been on the rise amongst both adults and children during the haze in rural C Kalimantan and rural S Sumatra. They blamed the haze for the diarrhoea saying that it contaminated their stored drinking water supplies. However, as diarrhoea was a common problem in these locations throughout the year, health officials did not specifically attribute this rise to the haze.

The distribution of masks across locations was haphazard. In all but one location school-going children had been given masks at schools. In rural W Kalimantan, there had been no masks given to children at school and even though the headmaster at the local primary school said he had bought masks from the school's fund, no one else had heard of this, or indeed received any masks. Here children told us when they wore a mask, it was bought by their parents. In peri-urban C Kalimantan some schools had

An 'unused' cloth mask which was distributed at the junior high school in rural C Kalimantan during last year's haze

distributed the masks while others had not.

The masks given out at schools were either green hospital-type masks, or heavier cloth ones. While most children knew the cloth masks could be washed and reused, those in peri-urban C Kalimantan who had received the green hospital masks said they had been instructed by the school to change the masks everyday and also were given new ones each day. In other locations, children said they had received just one mask from their schools and in Riau and peri-urban W Kalimantan this had been toward the end of the haze period when they had already been using masks that their families had bought.

Whereas adults in both C Kalimantan locations, Riau, Jambi and rural S Sumatra had received masks, the source was different for each. Families in peri-urban C Kalimantan and Riau said they had to collect masks directly from the *puskesmas*. While some in rural C Kalimantan had to go to the *pustu*, others were given out masks by their Sub Village Head. In Jambi some people received masks from their head of RT (*Rukun Tetangga,* Neighbourhood Unit) and some others got it when they had been helping to put out some fires near the company plantation last year. In rural S Sumatra, some of the masks had come from the nearby company; other women had been given the masks by the district level health department at a village

hall event last year. In both the W Kalimantan locations, there had been no mask distribution to the adults. Buying the masks was also an option for people in most locations, as most kiosks had a ready stock of cloth masks (costing between IDR 7,000-10,000 which they had bought from nearby towns) and kiosk owners shared that children particularly preferred the ones with prints on them.

'Masks are suffocating' was a generally held view by people of all ages who shared that they did not like to wear these if they could help it. Across locations parents told us that while they tried to make sure that children were wearing the masks, they themselves did not. Adults shared that the heavy cloth masks were '*suffocating*' and made it harder for them to breathe. Some people told us they liked to wet the cloth masks or just put a wet cloth over their nose and mouth as this made it less uncomfortable.

'I don't wear the mask while working, it makes me feel tired'

- Farmer, rural S Sumatra

Some said that while they wore masks to go outside, it was only when the haze was very heavy and even they would take the masks off when working. Some men in peri-urban W Kalimantan explained why they did not wear masks saying they were *'always burning the land around them to keep mosquitoes away, so we're used to the smoke'.*

Children in all locations were saying that even though their parents and teachers told them to wear masks, they did not like to wear them. We met a few boys playing volleyball who told us it was difficult to wear a mask and play sports. Other children in peri-urban S Sumatra shared that they did not wear the masks over their nose, but only covered their mouth as they '*cannot breathe*' when they cover their nose as well. While two young boys in Jambi said they wore masks even when indoors, they were the exception as most children said they did not wear masks even when playing outside. A group of adolescent boys in peri-urban S Sumatra thought that *'masks were for children and elderly'* and said they laughed at other boys if they wore masks.

'When the Bupati (Regent) came to the village last year, he was surprised to see the children were okay even though they were not wearing masks'

- HHH grandfather, rural C Kalimantan

Everywhere but in peri-urban W Kalimantan, health officials told us that the health centres had been keeping normal hours during the haze. In peri-urban W Kalimantan where the *puskesmas* was at a distance from the village, people did not visit often and said they did not know if it had remained open during the haze. In rural C Kalimantan, we were told that while the 'doctor' normally made monthly visits to the *posyandu*, he did not come during the haze but sent a nurse instead.

Health officials in different locations felt they were already equipped to deal with illnesses resulting from the haze and had sufficient supply of masks and medicines, with one nurse in Jambi saying she had also prepared oxygen cylinders. However, some villagers in peri-urban S Sumatra criticised the *puskesmas* saying it did not have oxygen cylinders and it was pointless to go there so they preferred to go the hospital in the district capital, which was thirty minutes drive away instead. Everywhere else people agreed that the health services had been more or less the same as normal with basic or no additional services during the haze.

Effects on education

'Not good that I can't go to school. I can't meet with my friends and panic thinking of the fire'

– Adolescent girl, rural C Kalimantan

Most schools across locations had closed at some point during the haze last year. In all but one location, parents and children told us that schools had closed for between less than five days (Riau, both C Kalimantan locations) to one month (Riau and rural C Kalimantan). In peri-urban S Sumatra, while the primary school had closed for a full week, the junior and senior high

Table 6: School closures over the course of the haze period

Locations	School closure days*		
	Primary School	Junior High School	Senior High School
Peri-urban S Sumatra	6	None	None
Rural S Sumatra	5 (School 1) None (School 2)	No information	No information
Peri-urban C Kalimantan	2-3	2	2-3
Rural C Kalimantan	3	12	24
Peri-urban W Kalimantan	20	20	20
Rural W Kalimantan	24	24	24
Jambi	18 (at a stretch)	18	18
Riau	2 days	12 (at a stretch)	24

*unless stated otherwise in the table, school closures were sporadic

schools had not been given school holidays. Some parents here told us that they had still kept their children out of school, as they feared they might fall ill. Additionally, school closure days had been different even for schools in the same location, and students we chatted with were not clear why the holidays had been different between schools (see Table 6).

In both the C Kalimantan locations, students also told us that their school days had been shorter by two hours during the haze. In the peri-urban location, primary school students told us that for a week, their school would close two hours early. Students were mystified by this and said 'it couldn't have been the haze' because the weather would have mostly cleared up by then. In rural C Kalimantan, primary school students said they went to school two hours later (9am instead of the usual time of 7am) but left at the usual time (11am). Again, no one could explain the reason for this, but during our stay there, we observed that even on regular days, though students were at the school by 7am, teachers would usually show up later at 8 or 9am.

24

Call to close the school from the district

The headmaster for the junior high school does not live in the village and only comes once a month to the school. During the haze last year, he would telephone the school teachers and tell them to close the school as there had been a letter from the district. On days when the haze was very heavy, the teachers would just close the school, even if he hadn't called them.

Rural W Kalimantan

While three of the schools (one junior high in Riau and two primary schools in Jambi) had closed for two to three weeks at a stretch, the other closures had been sporadic over the course of the haze period. As some students explained to us, 'classes would be held for a few days, then close, then open again,' continuing like this for a month or two. On some days, students would reach the school only to be sent back home by their teachers and headmasters (Riau, W Kalimantan, peri-urban S Sumatra). One HHH father in peri-urban W Kalimantan told us that despite him sending his two sons to school on the days the haze was lighter, the school would 'keep sending them back' .

Teachers and headmasters in Riau, W Kalimantan, Jambi and rural C Kalimantan explained the reason for irregular school closures saying this was determined by the district-level education department, which either sent a letter (Jambi) or made radio announcements (W Kalimantan) for schools to close on days when the haze was heavy. The teachers and some students would then be informed and pass on the information to other students. In Jambi, some teachers complained that this system was inefficient as the district made the decision based on the condition of haze in the district capital not where they were located. As the effect of the

25

Bored alone at home

One primary school girl who had been left alone at home by her parents when they went to work, told me she had been very bored and thought of going to her friend's house to play; but came back inside when *she 'couldn't see her neighbour's house because it was covered with haze.'*

Rural W Kalimantan

haze was not uniform throughout the district, there had been times last year when the village schools had remained closed even when there was no haze. One teacher in particular thought that the closure had been '*unnecessary*'.

It was implied in conversations with different people that, at times, schools would close even though there was no notice from the district as the school authorities did not want to take responsibility for children getting ill. One primary school headmaster in rural W Kalimantan confirmed this when he said he closed the school because if he hadn't '*parents would blame the school if their children got sick.*'

As one or both parents would be working when their children were sent back from school, their time at home was usually unsupervised. Teachers said that even when students were sent back from school, the older ones would not go straight home but hang around with their friends near the school or play outside.

Additionally, most children thought of the closures as a holiday, and as many schools did

Children making a social map of their area to illustrate important places in their community

26

Delayed exams because of the haze

There had been a delay in conducting the final examination for some schools in Riau. One teacher at the junior high school said that schools across the district have to hold examinations at the same time in a school year. Because the haze level/thickness was different across the villages in the district, some schools had to wait to hold their exams as other schools in the district were still closed due to the haze.

Riau

not give homework during the closure, children told us they would spend their time playing with friends (all locations) or helping their parents in the fields. One primary school girl in rural W Kalimantan had gone out with her mother to clear their rubber plantation of weeds one day during the school closure. She said it had been *'very hot and sweaty'* and felt sorry for her mother who had to work in the field daily even during the haze. Students of all ages told us that unless forced by their parents, very few of them had actually stayed indoors.

Those who had been given homework said they completed it in less than a day and spent the rest of the time playing with their friends. One junior high school teacher in peri-urban W Kalimantan shared that even though they had given students homework during the school closures, it was not taken very seriously and that the teachers '*didn't check it anyway.*' Additionally, none of the schools in the study locations had scheduled extra classes to make up for lost days. Most children and teachers we spoke to said they just rushed through the lessons when classes resumed.

Students and teachers also recalled that there had been days when smoke would enter classrooms when classes were in progress. A teacher in peri-urban C Kalimantan shared that smoke would enter from open ventilation and he could observe the students getting *'teary eyed'*. One student in rural S Sumatra told us that when this happened in her school, the teacher had just closed the door and the lesson had resumed.

Parents and students said that teachers, for the most part, were coming to the school even when schools were closed for the students.

However, on the days when the haze was heavy, it was understood when a teacher who lived farther away remained absent. In peri-urban Kalimantan some junior high school teachers lived in Sintang (more than an hour away) and would be absent during the haze. The head teacher said this was *'fair'* considering the teachers had to travel a long distance when the visibility was low and there were chances of accidents happening.

Only a few schools had given students advice related to the haze. Even in haze affected schools, (rural S Sumatra, rural W Kalimantan) this was only provided during mask distribution and was limited to telling students to wear the mask and not go outdoors during the haze. In rural S Sumatra, two midwives had come to distribute masks at the primary school (only after the school had closed for five days during heavy haze) and only told students to stay indoors during the haze. In another primary school there, students shared that a midwife would visit their school once every year and give health-related information, and that last year she had talked about the haze. None of the children remembered what they had been told, except one boy who said that though he did not believe the smoke was dangerous, the midwife had told him to '*wear the mask if he saw smoke*.' Another primary school in Riau had a peer program where 'junior doctors' had distributed masks to the children and told them to use them when going outside to play. In Jambi, one primary school teacher told us he had wanted to explain the health impacts of the haze to his science class, but he felt he had insufficient knowledge about the topic.

3.4. Managing and mitigating the risk of fires and haze

What do people do?

'I make sure the land around my house is clear of weeds and fallen leaves. If I do this, my house will be safe even if there is a fire nearby'

- HHH father rural C Kalimantan

Fire is carefully set at the edge of the field so that wind will guide it to the centre

As noted above, most of the farmers we spoke with insisted that it was not them burning their fields that had caused the bigger fires or the haze. They explained that as slash-and-burn was their traditional way of farming, they had ways to ensure the burning is controlled. In peri-urban W Kalimantan, a few farmers told us that when they needed to burn a section of their land, they cleared the surrounding land of dry leaves and twigs and watered it to ensure the fire did not spread. However, some said that because palm oil companies had drained the peatland for years now this technique might not work as the land is now very dry.

In Jambi, one HHH father shared that if a family wanted to burn some land, it was typical for neighbours to be invited to guard the perimeter. These neighbours (usually men) stand guard at the fire perimeter with small branches that they use to beat away the fire. The same way of controlled slash-and-burn was practiced in rural S Sumatra, rural W Kalimantan and rural C Kalimantan. Everywhere, it was understood that people had to wait in the field for the fire to burn out. Other ways people said were to burn in the direction opposite to the wind (Jambi), when the wind is not strong (Jambi, rural C Kalimantan, rural W Kalimantan) and to burn in smaller spots instead of large areas (rural S Sumatra).

'It (haze) *is in our blood* (referring to how people in the village had adapted to the haze)'

- Man, rural C Kalimantan

27

Peatland fires sometimes burn beneath the surface

We were talking to a group of farmers and asked why the big fires started. Some had no answer. Others said cigarettes or because *'it was too hot'*. A few farmers, however, told us that sometimes fires started when people didn't take care of their burning. One of them explained that though they need at least 7 people to guard the fire and control it, some farmers would try to do this by themselves, and *'of course then, they can't handle it'*. Others mentioned that when 'deep' peat is burned, the fire cannot be seen at the surface but it burns underneath and is impossible to put out. All of them agreed that sometimes it was the sudden change in wind direction when the burning was in progress which resulted in the fires spreading and becoming uncontrolled.

Insight from the Digital Storytelling process

Rural W Kalimantan

In both W Kalimantan locations, farmers explained that they took care to control the burning as they did not want to burn their neighbour's rubber or palm oil trees because *'it is people's livelihood'* (farmer, peri-urban W Kalimantan). In rural W Kalimantan, farmers said that if the fires from slash-and-burn spread and burned others' crops, they had a way of compensating them for this. One HHH father explained the process saying the flat rate for a rubber producing tree was IDR 250,000 while for an unproductive one it was IDR 50,000. The decision on compensation was made by the traditional court[5] and calculated based on the number of burnt trees.

Although this was not stated explicitly, from conversations with different people in Jambi and rural C Kalimantan, where monsoon floods were a regular occurrence, some of us got the sense that they felt: i. indifferent to the haze (Jambi) and ii. overwhelmed at being faced with both fires and floods in the last one year (rural C Kalimantan). In Jambi, where people had, for the most part, adapted themselves to the floods by building raised houses and using their boats to get to their land during floods, they seemed indifferent to the haze. They thought the last serious flooding (in 2003) had been a much worse occurrence as it had made areas inaccessible, they had lacked fresh drinking water and had to build extra platforms

People build raised houses in Jambi to avoid regular flooding, noted as a greater problem than haze

inside their homes as floodwaters had entered, and some even had to leave the village. Others compared the haze to the floods and said while it had been difficult to find food supply during the floods, they had been able to *'eat like usual'* even when the haze was severe last year. Some others told us that while there had been regular electricity blackouts during the floods, there was still steady electricity during the haze, so they had at least been able to stay indoors and watch TV.

In rural C Kalimantan where floods have been occurring routinely for the last ten years, last year's fires and floods destroyed most people's rubber and fruit trees. Farmers also say paddy and vegetable planting had been delayed this year, not just because of regulation enforcement, but also because of the early rains which flooded their fields before they could be cleared by burning. Echoing what most people shared one HHH mother here told us,' *those people who still continue to stay here have a lot of patience.'*

28

Other things people said about the haze

'We cannot collect drinking water early in the morning (as usual) *so go after haze clears in the mid-morning.'*

(Rural W Kalimantan)

Group of mothers cannot play volleyball as usual

(peri-urban W Kalimantan)

5 Most land-related issues in rural W Kalimantan location are solved in the traditional court where the norm is for the two disputing parties to be invited. Others there would include village elders, village head and other village officials, head of the police and sometimes the military.

The regulations

People's understanding of the regulations

Since the haze last year, enforcement of the regulations has become stricter across every one of our eight study locations. People would repeatedly share with us their frustration about not being able to burn their land for planting this year as they had experienced themselves, or heard from various sources that the 'government' was enforcing the 'no burning' policy seriously. Who people specifically referred to as the 'government' was different in different places.

'If people do slash-and-burn, they'll have to pay IDR 5 billion fine. Even if we sell this whole sub-district, it wouldn't be worth IDR 5 billion'

- Senior high school student, rural C Kalimantan

Most farmers in the peri-urban C Kalimantan location had stopped burning their land for farming a few years ago, and were using fertilisers instead. However, as there had been fires in some of the company palm oil plantations in other areas of the sub-district and another fire in the forest behind the junior high school last year, people told us some men had come from Jakarta around Idul Fitri for an information sharing programme. Villagers had been informed that the regulations prohibited any kind of burning and that the instruction was directly *'from the President himself'*. The fact that the regulation was related to the President had amplified its significance for them. Some told us that following the event, they were now afraid to burn their trash as the police (the sector police office is very close to the study location) patrolled frequently.

29

Police even check cooking fires

When we arrived in the village, we saw men using firewood to cook food for a baby naming ceremony, which was to take place that night. They were cooking out in the open. Later on, some women told us that the police had been alerted by the smoke from the cooking and had come to check if there had been a fire.

Peri-urban C Kalimantan

6 The Adipura Award scheme, given by the Ministry of Environment, has been in existence since 1984 and awards local administrations for cleanliness and management of the local environment.

Some people said they are practicing smaller scale burning due to the increased enforcement

The peri-urban S Sumatra location had been an *Adipura award*[6] district till last year but was apparently stripped of this title because of the fires that occurred there. People there had heard the *Bupati* had been unhappy about this and threatened to dismiss any *camat* (head of sub-district) if there was haze in their area. Some farmers here had also heard of a 'Zero burning' policy that had picked up pace from 2014, which required them '*to watch over fires they had started*'. Likewise, in rural W Kalimantan, the Village Head explained, '*the governor can threaten to sack the Bupati if there are hotspots in his area. The Bupati will punish the camat and the camat will then punish me.*'

There is also confusion among farmers in different locations about whether some burning is allowed or if there is 'zero tolerance' for burning. While some farmers in peri-urban W Kalimantan told us the government regulation stated they could not burn land at all, others thought that burning up to two hectares of land was allowed if it was controlled. One man who thought burning two hectares was allowed felt the regulation was '*silly*' because it meant they could '*burn one hectare today and two hectares tomorrow.*' In other locations, people are even less clear about the regulations, with most thinking that there is zero tolerance for burning. This is further compounded by the fact that police and military frequently patrol the locations and instruct people to extinguish even the smaller fires that they might have started. The regulations themselves are unclear, with one national regulation prohibiting everyone to open new land by slash-and-burn; while another instructs 'indigenous people' to report to necessary authorities before burning land.

> *'They* (police and military) *just come, put out the fires and caution the people. No fines or arrests are made'*
>
> - HHH father, peri-urban W Kalimantan

Rumours abound that people have been arrested for burning their land in areas around the study locations, but no one we spoke to knew anyone who had been jailed or even fined; they had only heard of them. There is much speculation about the jail term and the fines, with people in the same location sometimes quoting different times and amounts. While some men in peri-urban C Kalimantan were quite certain about the jail term being ten years, there was much confusion amongst them about the fine amount. In peri-urban S Sumatra too, some told us the fine was IDR 5 billion and five years in prison, whereas others mentioned a fine of IDR 10 billion and ten years. In rural W Kalimantan, even those men who had gone to the same information sharing event where the police and *babinsa* (*Bintara Pembina Desa*, village level military officer) had talked about the fines were confused, with some saying the jail term was six years, while the others said eight. By the end of the conversation, they had largely agreed that the fine amount was between IDR 5 to 15 billion. Additionally, no

What do the regulations Say?

The National level regulations have laws concerning:

1. Protection and management of environment (2009)
   Prohibit everyone to conduct land clearing with slash-and-burn
2. Plantation (2004)
   Prohibit plantations from opening or cultivating land by burning
3. Pollution prevention mechanism/environmental damage related to forest fire/land (2010)
   Require indigenous people who burn maximum 2 hectares of land to plant local variety of plants and inform village head. Village head, in turn, required to inform institution in charge. Land burning, however, cannot be done during long dry season, and/or dry climate and low rainfall

Source:
http://www.setneg.go.id/index.php?option=com_perundangan&curr_page=2&total_pages=3&Itemid=42&catid=1&tahun=2009
http://www.setneg.go.id/index.php?option=com_perundangan&id=3109&task=detail&catid=1&Itemid=42&tahun=2004
http://jdih.menlh.go.id/

The village head shares information at a wedding ceremony in peri-urban S Sumatra. Information about fire prevention were shared at wedding ceremonies last year during the haze

one could tell us if the amount of the fine was based on the size of the land burned. A cause for some of this confusion/misinformation in all locations was realised later, when we observed that all posters typically mentioned different fine amounts and jail terms, under one or more specific laws. However, no one in our study locations knew which of these different laws would be applied to them if ever they were to be prosecuted.

Across locations, people explained to us that the enforcement picked up in the last one year with information sharing events on the regulations and fires happening in different villages. In rural C Kalimantan, there had been an information sharing event on land and forest fire prevention in July 2015 right before the fires. The event had been for three days, but some people who had attended could not specifically remember what they had been told.

In peri-urban S Sumatra the Village Head explained that weddings were the best place to share information with people and that, in the past, he had talked about community participation in fire prevention at some of these events. There had also been other events at the sub-district office where a sub-district official had stressed on not practicing slash-and-burn. Another information sharing event here had also been done at the local farmers' group meeting by the SATGAS (*Satuan Tugas*, taskforce, in this case, formed for mitigation of fire risk), but the farmers who had been there felt it was not appropriate or needed as they were not the ones starting the big fires. In Jambi, there was

This cleared land is left unused as people are afraid to burn this year in rural C Kalimantan

a neighbourhood prayer meeting every two weeks last year, where the Sub Village Head would share information about the fires.

While talking of the same information sharing event where men had been confused about the fines and jail terms related to burning, the Village Head in peri-urban W Kalimantan said that he had invited the police and *babinsa* who told farmers they could not slash-and-burn. People in the village had been told if they got caught, they would be jailed and fined. After they protested saying they needed an alternative solution, the *babinsa* gave in and told them to '*do the burning after 5pm, because the satellite cannot capture hotspots after 5pm.*'

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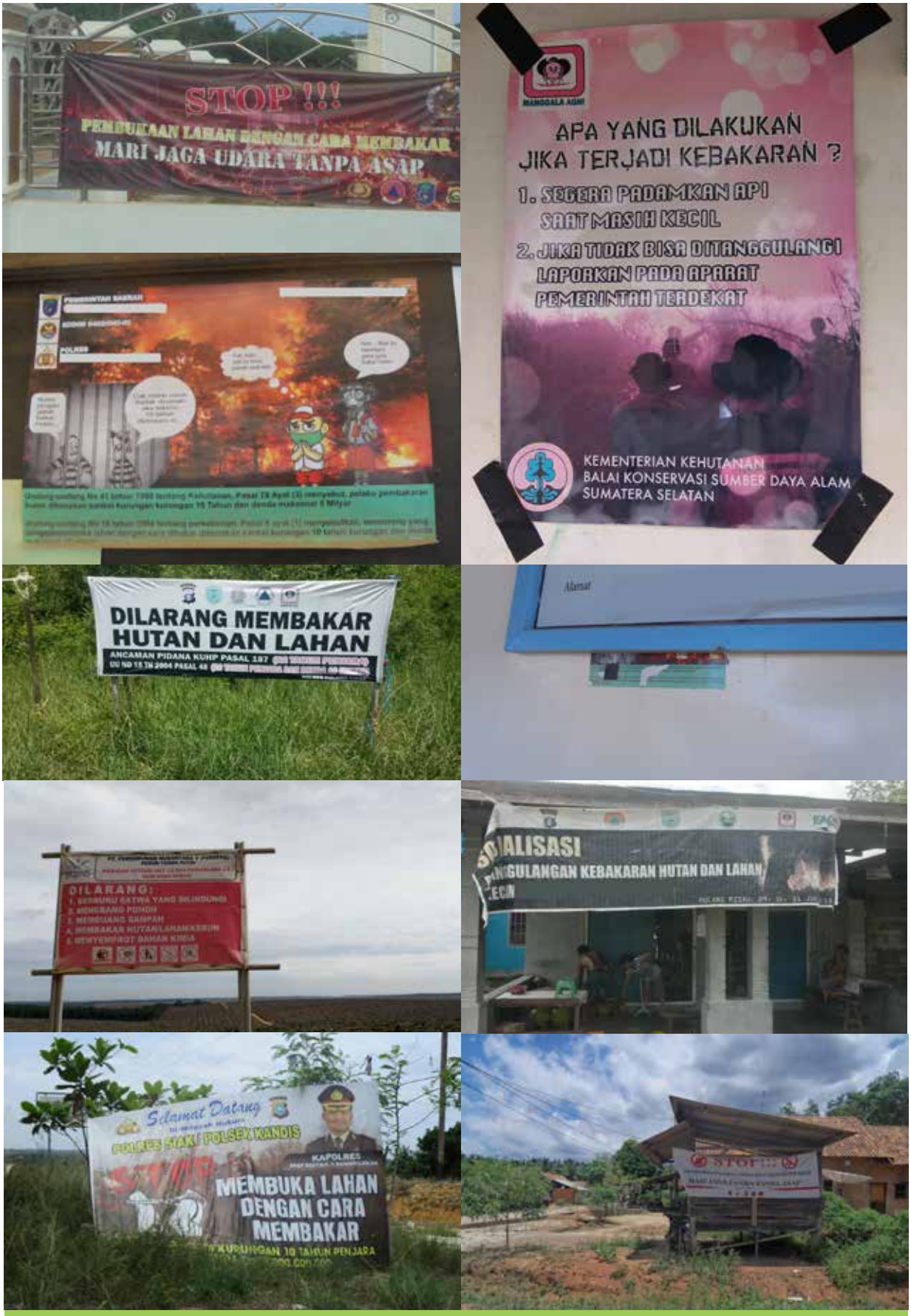
Calendars with fire impact messages

I was talking to 'my neighbours' who told me that after last year's haze, the local government had distributed calendars to some families in the village. When I asked if I could have a look, they said they had lost it. As the family had already bought a 2016 calendar when the government calendar was distributed, they had no need for it. As I was interested to see the calendar, the mother went to the house next door and brought a copy. The calendar had photos with one-line captions on how land and forest fires can '*degrade air quality*', '*degrade soil fertility*', '*disrupt public health*', '*disrupt educational activities*' etc., with no further explanation of how. The calendar also stated three different regulations related to burning and mentions the jail term and fine amounts for not following the regulations.

I later asked my HHH family if they too had been given this calendar. They said they hadn't. None of the other families I visited in the next couple of days mentioned this calendar and neither did I see the government calendar hanging in their house.

Rural S Sumatra



A wide variety of posters and banners relating to fire prevention could be seen in most study locations

In all but one location (Jambi), researchers observed posters and banners related to fires in the villages. These posters and banners would either be on display at major thoroughfares where they were visible to people, or near the village office. Both the S Sumatra locations had many posters and banners and in the rural location, people told us these had been put up near the fire sites after the President's visit last year. The posters in peri-urban S Sumatra were at the village office which instructed to *'extinguish the fire before it became uncontrollable'* and '*report to the nearest government authority if the fire was unmanageable'* without mentioning who the government authority was or how to contact them. As one of us observed, another poster that mentioned the fine and jail term for those who started fires had been covered up by another board at the village office. Villagers told us they had never noticed this poster. As mentioned above, some families here had also received calendars from the village office last year (see box). Additionally, researchers here also observed many BPBD (*Badan Penanggulangan Bencana Daerah*, Regional Disaster Management Agency) observation towers with banners about forest fire prevention along the road to the village.

A few families received these calendars in rural S Sumatra but few bothered to keep them as they were distributed late in 2016 so they already had calendars

BNPB tent set up after 2015 fires to mitigate further fire risk in peri-urban S Sumatra

In rural C Kalimantan, one HHH father was asked by some government officials to put up banners (from the district office and forestry department) instructing people not to burn. While he took these banners from the officials, he said he did not put them up as it would mean he was siding with the government against his neighbours. Additionally, one of us was shown a banner that was folded and kept under a cupboard in the village office by the Village Secretary.

Enforcement of the regulation

Most people were less worried about whom the regulations/enforcement were coming from and more concerned with what it meant for them in terms of providing for their family if they could not burn their land at all. They told us that with the enforcement in place, they had no way of clearing their fields for planting as the police came to check even if they saw smoke from burning trash (rural C Kalimantan). In peri-

Police come to monitor even if the smoke is only from families burning trash in rural C Kalimantan

Table 7: What do the provincial regulations say?

Provincial Regulations on Slash-and-burn	Jambi	South Sumatra	Central Kalimantan	West Kalimantan	Riau
People and enterprises prohibited to slash-and-burn while opening land	✔	✔			✔
People conducting limited/controlled slash-and-burn required to report			✔		
Required to report and obtain permission from authorised entity when opening land	✔				✔
Required to report immediately in case of forest fires	✔				
Communities living near risk area to be involved in controlling and prevention	✔				
Prohibited to leave burning land without efforts to put it out					✔
Prohibited to throw cigarette butt or conduct other activities that might cause forest fires					✔
Mandatory for enterprise to have facilities for fire prevention					✔
Land owners/enterprise with more than 2 hectares required to have a fire team/ prevention equipment					✔
Written permission from authorised official (depends on how much land being burned)			✔		✔
Burning under special, unavoidable circumstances needs permission		✔			

Source:
http://infokehutanan.jambiprov.go.id/file/PERDA_NO_02%20TH_2016.pdf
http://jdih.sumselprov.go.id/userfiles/PERDA%20NO.8%20THN%202016.pdf
http://jdih.sumselprov.go.id/userfiles/PERDA%20NO.8%20THN%202016.pdf
http://jdih.riau.go.id/?page=tampilproduk&id=admin/assets/produkhukum/produkhukum_1466389034.pdf&idp=ID_1466389034

urban S Sumatra, some farmers told us this year they had planted their paddy on the burned, unused company land as they were afraid to burn their own land because of the police, and it was the better option than not planting at all.

The fact that more actors were involved in the enforcement this year also seemed to have increased people's anxiety. The Village Head in rural C Kalimantan told us that this year it was not just the police and *babinsa,* but also the military who were involved in the local enforcement, so it is more serious. Men and women here explained they had heard that if they were caught by the police trying to put out a fire, it was possible to get blamed for starting the fire. So if they saw a fire now, they would *'just let it go'.* Some others in this location showed us the vegetation growth around the village and explained how overgrowth could make the chances of fires spreading worse in upcoming dry seasons. They were frustrated at not being able to clear the bushes as the police might apprehend them for starting a fire.

> *'Now no fire, no haze, but also no rice for people'*
>
> - Farmer, rural C Kalimantan

Everywhere people said they were intimidated by the frequent patrolling, either by the police, military or other fire prevention groups. In peri-urban W Kalimantan, one HHH father said police and military would walk around with guns in the

village making sure there were no fires. In rural C Kalimantan, women confided that policemen sometimes came disguised as fishermen to check if anyone was setting fires. Others told us about policemen who would randomly approach farmers who were working in their fields or people on motorbikes and ask them to sign a form that pledged '*they would not burn their land*'. One woman farmer said she was afraid to sign the form but did it nonetheless just to get the police to leave, while another refused to sign because *'it* (signing the pledge) *would mean my family couldn't eat.'* The police here were said to be patrolling during the dry season, but not so much when it rained. In peri-urban C Kalimantan one old woman told us that police had been making visits to people's homes and asking them to sign a similar form. A few of the policemen we spoke with in the same location said they had no option but to do this because the '*enforcement from above'* was quite strong now and they had been told that if there was a fire in their area, they would lose their jobs. In Jambi, one HHH father had been stopped by some military men while burning his land. They warned him and gave him a paper which had instructions on ways to do controlled burning. However, days afterward he and the other men had not gone back to clear the land because they had been shaken by the incident. Company-owned plantations seem to have been affected by the stricter enforcement as well. In both S Sumatra locations some companies had

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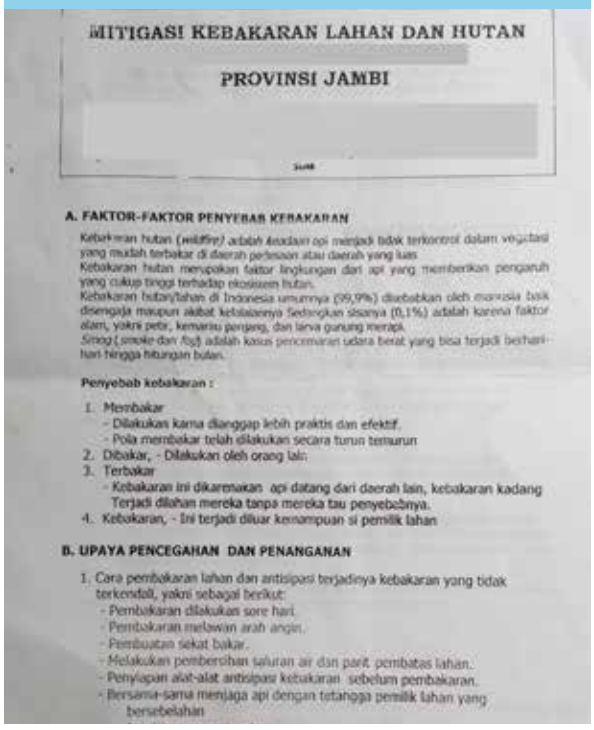
Printed guidelines on controlled burning

On my first night with the family, I saw some papers in 'my father's' hand. When I asked what those were, he told me it was instructions for controlled burning, which the military had given him. I did not think of this much until I heard neighbours mentioning this on several occasions. They said some days before I had arrived, 'my father' had tried to burn the six hectares of land that he and twelve other men had borrowed from a person in the village to plant *sawit* (palm oil). As they were burning the land a helicopter flew overhead and a few military men came by minutes later. '*Yes, the army guys, the green flies'*, one mother said. I asked 'my father' to share the paper on the third day. It was instructions on prevention and handling of fires and makes a distinction between *membakar* (to burn) as uncontrolled fire, and *pembakaran* (burning) as controlled burning. The paper does not mention or explain about the different regulations related to burning for clearing or cleaning land.

Jambi



MITIGASI KEBAKARAN LAHAN DAN HUTAN

PROVINSI JAMBI

A. FAKTOR-FAKTOR PENYEBAB KEBAKARAN

Kebakaran hutan (*wildfire*) adalah kejadian api menjadi tidak terkontrol dalam vegetasi yang mudah terbakar di daerah pedesaan atau daerah yang luas
Kebakaran hutan merupakan faktor lingkungan dari api yang memberikan pengaruh yang cukup tinggi terhadap ekosistem hutan.
Kebakaran hutan/lahan di Indonesia umumnya (99,9%) disebabkan oleh manusia baik disengaja maupun akibat kelalaiannya Sedangkan sisanya (0,1%) adalah karena faktor alam, yakni petir, kemarau panjang, dan lava gunung merapi.
Smog (*smoke* dan *fog*) adalah kasus pencemaran udara berat yang bisa terjadi berhari-hari hingga berbulan bulan.

Penyebab kebakaran :

1. Membakar
   - Dilakukan kama dianggap lebih praktis dan efektif.
   - Pola membakar telah dilakukan secara turun temurun
2. Dibakar, - Dilakukan oleh orang lain
3. Terbakar
   - Kebakaran ini dikarenakan api datang dari daerah lain, kebakaran kadang Terjadi dilahan mereka tanpa mereka tau penyebabnya.
4. Kebakaran, - Ini terjadi diluar kemampuan si pemilik lahan

B. UPAYA PENCEGAHAN DAN PENANGANAN

1. Cara pembakaran lahan dan antisipasi terjadinya kebakaran yang tidak terkendali, yakni sebagai berikut:
   - Pembakaran dilakukan sore hari.
   - Pembakaran melawan arah angin.
   - Pembuatan sekat bakar.
   - Melakukan pembersihan saluran air dan parit pembatas lahan.
   - Penyiapan alat-alat antisipasi kebakaran sebelum pembakaran.
   - Bersama-sama menjaga api dengan tetangga pemilik lahan yang bersebelahan

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Frustration of checking out hotspots

On my third day at the village, I accompanied a few police and military officers when they were going to inspect a hotspot. They said they had received information from the district about a possible hotspot in the peatland area and had been given GPS coordinates to the location. While on our way there, one policeman expressed frustration saying that this was the third time in the past two weeks that they had got a call from the district to check the same spot. The first two times they had almost reached the place indicated, but had returned after they did not see smoke in the area. Because the district kept sending them back even though there was no fire, this time they wanted to reach the exact coordinates and send the district a photo of the app on their phone (showing the coordinates) and the land below as a proof that there was no fire. They said every time they received a call from the district regarding the hotspots, they would inform the *camat* but he didn't seem to care and the provincial and district level did not understand the difficulties of working on the field. They did not have any equipment so even if there was a fire, there was nothing they could do.

When we finally reached the area after two hours' walk, there was no fire.

Peri-urban C Kalimantan

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I met a policeman who told me that the government uses a satellite to detect hotspots and that this has an accuracy of 87%. He also said that the peatland gets quite hot during the dry season, so perhaps this is why satellites were detecting hotspots, although there were actually no fires.

Rural C Kalimantan

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'Police with big guns are coming'

'My family' told me that a few days before I arrived in the village, father had been part of a group who was clearing some land by burning (to plant vegetables). While at it, they heard a rumour that *'police with big guns'* were coming so had to quickly put out the fire.

Peri-urban W Kalimantan

had their license revoked after the big fires last year. People in peri-urban S Sumatra said this had happened following *'Jokowi's visit to the district after the fires'* and they now saw his administration more positively as he was able to revoke the company's license. However, one DPRD member mentioned that this company was owned by a *'powerful'* man in Palembang and if the punishment for this was only a monetary fine, it would be '*nothing money*' for him. Others in rural S Sumatra questioned why only one of the company plantations had shut down its operations during the haze when there were two companies in the area. They noted that the company that closed had been the one visited by the President during the fires. Yet others mentioned that this company had started operating again, but did not know if they had paid a fine to do so.

Workers at the company-owned plantations also emphasized that the companies had become more serious and were taking strict measures to ensure that fires did not occur on their land. In peri-urban W Kalimantan, one worker explained because the company was afraid of getting its license revoked, workers were made to patrol the perimeter of the plantation. Some other men here added that the company had also asked the villagers to inform (the company) if they wanted to burn any land adjoining the company's and that they would help them do controlled burning. In peri-urban C Kalimantan, some plantation workers explained that while earlier they had been allowed to smoke cigarettes anywhere on the plantation, recently the company had placed restrictions on this. They now had a smoking zone and this was the only place on the plantation that the workers were allowed to smoke.

Authorities search for a supposed hotspot in C Kalimantan, but find no fires

In different locations, people talked about the government monitoring fire hotspots in the area through satellites and computers. In rural C Kalimantan, one man said he had been burning a small patch of land with nine other people and was brought in by the police and interrogated. It was then, he explained, that he became aware of how satellites could monitor the fires. Another young man in rural S Sumatra said that they had been unable to do the '*paddy sonor*' this year as the government *'is watching the fires on a computer and will send a helicopter to put out the fires.'* The helicopters, people say, are for surveillance (like in Jambi) as well as to put out the fires (discussed below).

'The government loves the forest, but not the people'

- Woman, rural W Kalimantan

Besides, many also felt it was unfair of the government to prohibit all burning without providing them with a solution. '*Only pressure, no solution*' was what most people thought about this and one HHH mother in peri-urban W Kalimantan expressed her disappointment with the government saying, *'we just want to*

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Thwarted trying to clear land for construction

While some men were clearing the land by burning, officers from the military and *Manggala Agni* came and stopped the fire. The next day people went back to the same site and burned it again. The village wants to build a 6x9 metre security post near the company palm oil plantation and men I talked with questioned how they would clear the land for this if they were unable to set a fire?

Peri-urban W Kalimantan

*eat, but they (*the government) *does not give us any solution.'*

This need for a solution was also felt by those who themselves were in charge of enforcing the regulations. In peri-urban C Kalimantan, one policeman told us that *'it was a pity that they (farmers) could not burn anymore'* and that '*it (the regulation) doesn't give a solution to the farmers.'* Likewise, one DPRD member in peri-urban S Sumatra thought the government had to show some flexibility in relation to the 'zero burning' policy.

Likewise, the Village Heads in peri-urban S Sumatra and W Kalimantan were also sympathetic towards people's predicament. While the Village Head in peri-urban S Sumatra told us that small-scale burning should be allowed, after a discussion with the babinsa the Village Head in W Kalimantan had told farmers they could burn two hectares of land as long as they did it at night. In rural C Kalimantan, one BPD member told us that this year when the *Bupati* visited the sub-district, he told people there that farmers could burn one hectare for planting paddy as long as the burning was guarded and controlled, but '*do not say the Bupati told you to burn.'*

How people get around the regulation and its enforcement

Despite the heavy monitoring and enforcement, some people in all but two locations confided that they were still doing slash-and-burn, albeit on a much smaller scale than before. In peri-urban S Sumatra, people were afraid to burn because of the enforcement by authorities, which they say is stronger after the President's visit last year. In peri-urban C Kalimantan, most farmers had begun using herbicides and fertilisers, but others said they felt apprehensive about the constant monitoring by the police and had stopped burning altogether.

Farmers also thought the 'no burning' regulations were unfair to them as rich people and companies would still be able to hire others (to manually clear the land, or burn the land to make it look like an accident) or use heavy machines to clear the land, and were not as affected by the enforcement as the small farmers. Echoing other farmers who thought the regulations unfair, one farmer in rural S Sumatra argued his decision to continue burning (but on a smaller scale than before) by saying, *'for poor people there are few alternatives for burning, but the rich people have options.'* Some farmers shared that they were getting around the enforcement by creating a very small fire each day to remove a few plants at a time. Others checked the wind direction and used mosquito coils to set fire on a neighbour's land and let this fire spread to their land. While some farmers in rural C Kalimantan were also starting fires on neighbouring land and letting it spread to their land, most of them said any kind of burning was usually done in the evening, as they felt it then became harder to detect.

In peri-urban W Kalimantan, one HHH father confided that since everyone had mobile phones, on a good weather (dry) day, a few men would call each other up and decide to burn their land simultaneously. He laughed and said that when this happened, the police and military '*would not know where to go first to stop the fires.'* Some other farmers explained to us that they were only clearing 0.5 hectares of land at a time because if they burned more than that, the smoke would be heavy and the police or military would come to put out the fire.

In rural W Kalimantan, farmers had delayed the slash-and-burn for paddy planting this year from August to October. Though it would take them more time to do the slash-and-burn because of early rains[7], they had not wanted to clear the land during the dry season as they thought the winds were in the wrong direction this year and this could cause the fires to spread. Others said the monitoring by police and *babinsa* had been stricter in the dry season and so they had decided to plant paddy later. People were further worried that their harvest would decrease, as they had not been able to plant in the planting season.

> *'Maybe Jokowi wants us to eat corals'*
>
> - HHH mother, rural C Kalimantan

7 While the dry season in Indonesia is from April to October, people across locations told us that rains had started early this year and it had rained on an almost daily basis when the research team was in the field.

Despite these above examples, most we spoke to across locations were frustrated about the increased enforcement and many felt that the regulations had been enforced only because the haze had affected Malaysia and Singapore last year, with one HHH mother telling us, *'it's okay if our neighbouring countries are affected by the haze, the most important thing is for our people not to starve"* (rural C Kalimantan), and another HHH father saying *'the government wants to kill us slowly for the sake of outside people (Malaysians).'*

3.5. DEALING WITH OUT OF CONTROL FIRES AND EXCESSIVE HAZE

Own practice

In locations where there had been fires nearby last year, people told us when the fires had been near their homes, they had either tried to extinguish it themselves or worked together with their neighbours. In rural C Kalimantan, where the fires had occurred in and around the village, people had used water hoses and buckets to pour water around their homes as a preventive measure. A group of primary school children here recalled that they had helped put out the fire behind their school and while a few boys were proud that they had been involved, some girls told us they had been afraid and so did not help. An elderly couple who were living alone told us that as the fires had been quite close to their house, they had stayed outdoors. They further explained that neighbours had come to see if they needed help and thought they would have helped them if actual fire fighting had been required.

In rural S Sumatra, one man explained that if someone saw a fire on their neighbour's land, they informed the owner and others would help to extinguish it. People carried knapsack sprayers of water and used this to spray water on the fires. Others told us they used leaves to smother the fire if the fire was small. One person mentioned borrowing or renting a car and using this to carry barrels of water to the site of the fire. Likewise, in peri-urban W Kalimantan, people filled knapsack sprayers usually used for fertiliser to fight the fires with water. They said as they had to remain at the site until the fire

This knapsack sprayer was used to put out fires around the family house last year

burned out and that they usually wore damp clothes and also covered their mouths with a wet cloth. Everywhere people agreed that while their first priority was to control the fire, if it was big they could only watch.

People in rural C Kalimantan also said they felt defenceless when the fires were big. Some men explained that the fire, which came from the forest last year, had been *'as big as the trees'* and there was nothing to do but watch as it burned. Others seemed to feel that it was impossible to do anything when the fires were out of control and even if fire fighters reached on time, they would be unable to fight the fires that were *'as big as our houses'*. One young policeman we spoke to in peri-urban C Kalimantan also said that if there was a fire in the middle of the forest, they were unable to do anything as their equipment (a hose and a water pump), was largely useless. While they might try to put out the fire first, they would just run away if it went out of control. He further explained that at times they had to walk for hours just to reach the location of the fires, and when this happened, they would not take the equipment along as it was very tiring to carry around a heavy water pump to put out the fires. People in general mentioned that the village authorities were their first point of contact for all emergencies, not just those related to

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Taking the baby to safety

'My mum' told me when the fire had been near her house last year, she took the baby and moved to the neighbour's house.

Rural C Kalimantan

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Fire and Fate

I was talking with some rubber farmers, including 'my father' about last year's fires. While most of the men there blamed the palm oil company for starting fires to open their land, 'my father' had a rather different take on the situation. He recited a verse from the Al Quran that said God bestows three things upon his people: test, temptation and punishment. The fires were a way for God to test his people's faith and they needed to persevere. This was part of God's plan. He said, '*we were lucky God did not decide to punish us.*'

Rural S Sumatra

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Some people told me the fires were a *bencana,* a natural disaster, and '*we will let that be* (submit to it).'

Rural S Sumatra

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Some women in my village expressed their resignation saying there was nothing they could do but *'surrender (to the fires) and keep patient'*.

Rural C Kalimantan

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Some men from the village showed me a mosque that was built after the fires last year. They said it was built there to *'protect'* the surrounding land (which had palm oil trees) as well as to provide a place for worship for the villagers. They said the district office had provided them with the funds to build the mosque.

Peri-urban S Sumatra

Mosque protects the area from fires

fires or haze. One exception was Riau, where the Sub Village Head lived on one side of the village and people said he, '*gave everything to that side*' and '*only turned up for the parties*'. Here people told us they were used to doing everything by themselves, or asking their relatives for help.

In peri-urban S Sumatra, where people told us the Village Head was their first point of contact for the fires, he however seemed to believe that people '*did not trust him*' and that they would go to the SATGAS instead. In peri-urban C Kalimantan, some men told us that in case of fires, they knew to contact the Village Head, who would then contact the appropriate authorities. The Village Head, though, thought people should directly contact the *Masyarakat Peduli Api* (MPA) who had been tasked with the responsibility to control fires. As there had been no fires this year, people had no reason to contact the MPA, but we were told that they could either telephone one of the members, or go to their homes in case of a fire.

In rural C Kalimantan, people on one side of the village explained that they would inform the Village Head of the fires by going to his house, whereas those who lived farther away said they informed those in their proximity in case immediate help was needed to fight fires. The Village Head here, however, was trusted and respected by the people who told us that last year, he and the *camat* had also helped them fight fires.

As most of the houses in the study locations were wooden structures (or partly wooden with concrete floors and wood walls), on bad days people said smoke penetrated through the gaps in the wood. The peri-urban S Sumatra location had traditional wooden houses where the second floor (also the floor where people normally spent their time) had bigger windows but no other ventilation. Some women told us that on the bad days when they closed the windows it would get very hot in the house. One family recalled the one day when, even after closing all the windows, they could still see the smoke come in through the gaps in the walls. They had felt afraid as they had never seen anything like this before. The family said that had been *'the bad (*haze*) week.'* Another young woman in Jambi had a similar experience and said she could see the smoke had filled the house when she turned on the lights.

Parents in all study locations told us they tried

to keep children indoors as much as possible when the haze was heavy. While some parents in peri-urban C Kalimantan told us that their children (10-12 year olds) had *'no choice but to obey them'*, other parents in rural W Kalimantan, Jambi, Riau and rural C Kalimantan admitted that keeping children indoors was next to impossible and *'the stubborn ones would still play outside'* (HHH mother, Riau). As parents also had to go about their daily chores, keeping an eye out and ensuring children did not go outdoors was challenging. One single father in rural C Kalimantan told us that even though he kept the door to the house closed during the haze, his nine-year-old daughter would run out as soon as his back was turned and go to play with the neighbourhood children. Another father in peri-urban W Kalimantan laughingly shared that though the family tried to keep their children indoors, sometimes even locking the doors, his daughter still managed to climb out from the window. Most adolescents told us that it was the younger children who were told to stay inside, while they would be hanging out with friends outside even during the haze. However, younger boys and girls too shared that they would be mostly outside during the haze playing volleyball or soccer with their friends. One junior high school girl in rural W Kalimantan told us that though she stayed indoors in the morning when the haze was thick, she would meet her friends in the afternoon and they would play jump rope. Another boy here told us his routine had not changed much even during the haze as he would still go fishing with his friends after school.

Some children who were kept inside by their parents grumbled about not being able to go outside and play with friends (Jambi), though a few boys in Riau were happy that they could stay indoors as it meant they could watch more TV. One other boy in peri-urban S Sumatra said he was frustrated though as all he could do was watch TV with his family who stayed home with him. In peri-urban W Kalimantan, one boy said he had been happy to watch cartoons *'from morning till night'*, while a group of children in rural W Kalimantan said they were bored as there was nothing to do (the location did not have electricity, so they could not watch TV). Mothers here also told us they had been bored while staying indoors with their children.

While some parents went to their fields earlier in the morning as they wanted to return home to be with the children when school was off, others in rural W Kalimantan told us they took their children to their fields rather than leave them at home alone. While younger children were told to stay away from the fire and smoke (from the slash-and-burn) either in field huts or playing with their friends in the river, the older ones (those above eleven) were encouraged to help and learn the farming process, as they were seen as *'strong enough'* to take the smoke. A young boy here told us he had accompanied his family to plant paddy in his grandfather's field one day during school closure. While his elder brother had helped in the field, he himself had gone to catch fish in the small river nearby.

Outside help

While the provincial and central government had largely responded during and after the fires last year, people questioned the timeliness and effectiveness of this response. Where helicopters and planes had been used for water bombing the fires, villagers told us it had been *'useless'* as the wind blew the water away to a different area. In rural C Kalimantan, we were told about a man from the neighbouring village who had been drenched by water from a helicopter when walking in the forest. People said he had not been anywhere near a fire and supposed the pilot had either miscalculated the location or the wind had blown the water to where the man was. Likewise in peri-urban C Kalimantan, the Village Head told us the provincial government had tried to extinguish the forest fires last year by using helicopters and planes, but this had not helped. In Riau, a few men told us that when the water bombing by helicopters did not extinguish the peatland fires the government had begun using salt to create artificial rain. They explained the

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Ridding pests with smoke

Last year when the school closed during the haze, the eleven-year-old son of 'my family' would help his father create smoke in their pepper plantation (300-500 trees) to rid the trees of pests.

Rural W Kalimantan

process as *'helicopters carrying salt which was deposited on the clouds to cause the rain'*. In Jambi, where this had been tried already, men said it been ineffective as the peatland fires were under the surface and pouring water on these fires simply further intensified the haze. Everywhere people told us the fires had stopped only when it began to rain naturally.

In rural C Kalimantan, while there had been helicopters coming regularly to extinguish the smaller fires (on people's fields) in 2014, many were puzzled at the absence of helicopters last year during the major fire. One man rationalised this saying, *'maybe they (BNPB, Badan Nasional Penanggulangan Bencana,* National Disaster Management Agency*) don't have the budget now.'* In the S Sumatra locations, a local newspaper had a story on how one palm oil company was training some locals to fight fires, including with helicopters. In the peri-urban location, some thought this was being done with the help of BNPB and that the helicopters were borrowed from the Singapore government on the condition that if Singapore was still affected by the haze, the Indonesian government would have to pay a fine to the Singapore government.

The Jambi location had seen a particularly strong outside presence during the fires last year. People here explained that during the fires, there had been many police, military, *Manggala Agni* and BNPB officials passing through the village for three months at least. At times some of them had overnighted at villager's homes, including one of our HHH. One headmaster here told us the military constantly patrolled the main road during this time, helping children along the road and cautioning people to wear masks. Some other men were also appreciative of the military's help in fighting the fires. Others explained that volunteers were recruited from the village to assist the military in fighting fires, and hundreds of men would go out to fight the fires each day. One of our HHH fathers was one of these volunteers and though he went out for two nights, there were no fires and the team had eventually been asked to clear some bushes. The father grumbled about not being paid for his work, even though the volunteers had been told they would receive IDR 100,000 per day for their help. Another HHH son had also joined the volunteers and said he had been *'given a metal pipe to insert under the peatland surface and pour water in it'*. He worked for a week and was paid.

All but one of our locations had either a local task force or some form of monitoring to help prevent fires. While in most locations this had taken effect after the fires last year, the rural C Kalimantan location had had two fire fighting teams for some years now. In rural W Kalimantan there was neither a fire-fighting team, nor any monitoring. Likewise, people in peri-urban W Kalimantan told us of the police and military men who walked around carrying guns and looking out for fires.

'They (TSA and MPA) got training, yes, but it was with a man-made fire. If they had to face a real fire, they'd probably be confused about what to do.'

Woman, rural C Kalimantan

In the rural C Kalimantan location there was much confusion relating to the two fire-fighting teams. While some men told us that there were

This fire fighting equipment has mostly never been used (C Kalimantan)

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Company fire training

I met the wife of one of the members of the task force. She told me her husband had been trained to fight fires along with five other men by the biggest palm oil company in the area. After the training, the men had been given a water pump and a hose by the company. The men had been mobilised once when there had been a small fire in an individual-owned palm oil plantation. She said the owner had come to their home to call her husband when the fire had happened. He had also given the task force some money after they had helped put out the fire. The money was used to pay for the gasoline for the water pump.

Rural S Sumatra

two different fire-fighting teams, the *Tim Serbu Api* (TSA) and the MPA, others seemed to think that the TSA had now been merged with the MPA. Nonetheless, everyone agreed that both teams were largely defunct. People say the TSA had been formed ten years ago after a NGO, with funding from Japan, had trained ten men from different villages in the sub-district and given them equipment for fire-fighting. These included a gasoline-run water pump and hose, both of which were kept at a TSA member's tool-shed in a general state of disuse. The MPA, people say, was formed by the sub-district government but no one, not even the Village Secretary, seemed to remember how long ago this had been. The MPA too had received equipment from the government and an INGO around three years ago. The Village Secretary told us that it included '*a metal pipe to wet the soil*'.

Despite having two local fire-fighting teams, people in rural C Kalimantan seemed to think there was no use for them. One reason was that both of these teams had locals from different villages in the sub-district, with only one or two members from each village. People explained that if there was a fire they would be unable to respond immediately as they had to come from different villages, which took a long time. Others scoffed, saying if the helicopters could not put out the fires how would they when *'all they had was water pumps and a hose?'*. Some men seemed to think that as the fires usually happened in the dry season, the lower ground water level meant they could not use the pump to fight fires. A few others explained there was no operational cost separated for the teams by the village/sub-district office and even the gasoline would have to be bought by members of the team themselves. One of our HHH fathers, who was a member of the TSA, confided that in the ten years that the TSA had been formed he had only gone to fight fires once. He said the one time he had gone, they had to pay themselves for the gasoline for the pump. There also was no provision for paying the firefighters and he said he did not want to risk his life for nothing.

In peri-urban C Kalimantan some people told us there were ten men in the village who were part of the MPA. These men had been given a one-day training from the district and were entrusted with fighting fires and awareness raising (about fires) for others in the village. They had also been given a water pump and a hose, but some told us the length of the hose was short and therefore '*useless*'. The village had also received two water pumps from the district for fighting fires and three bore wells were being constructed to be able to use these pumps. The Village Head explained that he was also hoping to be able to use the pumps and the wells to supply drinking water to the village, as the river water was salty. As there had been no fires there recently, one HHH family told us one of the pumps had only ever been used to bring water from the river to clean dead bodies for funerals.

While two of the study locations had SATGAS teams (Riau and peri-urban S Sumatra) that were made up of local people, one location (rural S Sumatra) had a local task force made up of six men. Our families in Riau and rural S Sumatra seemed to feel that these had been formed for compliance only, *'because the local government had to'* (man, Riau). In all three locations the formation of these teams had been recent. In rural S Sumatra the men who had been chosen for the task force had, in fact, been in charge of village security previously and this was an added role for them. People said the training had been organised by the biggest palm oil company in the area and did not know if the local government had any involvement in this. Many felt these men had got the job because they were close to the Village Head

and they would eventually delegate their work to others in the village. Their responsibility, as one of the six explained, was not limited to fighting fires, but also to *'help them* (people) *do slash-and-burn properly.'*

In peri-urban S Sumatra, the SATGAS team had been formed three months earlier as a part of the district's response to last year's fire. It included four local men (on an unpaid, voluntary basis) who were chosen by the Village Head and six others including local police and military. While the team had been trained to fight fires, they had never actually done any fire fighting. Some suspected the SATGAS had only been formed because of the fire near the school last year. Teachers and students had worked together to put out this fire, as the closest fire-fighting team had been two hours away and people thought this justified the need to have a local team. As there had been no fires in the village after the team was formed, they mainly helped local authorities during information sharing events related to fire prevention. They explained that the SATGAS was mobilised either when villagers contacted them directly, or when the BPBD contacted the *camat* who would mobilise the team. People here also told us about an emergency response centre with a POSKO (*Pos Komando*, command centre) that had been set up in the neighbouring village that was close to the forest area and peatland. When some of us went to visit the POSKO, we observed that it was equipped with only a hose, a generator and some uniforms.

This recently established village command centre is equipped with only a hose, water pump and some uniforms

Whereas all locations had general village funds, people did not know if any emergency funds had been allocated to the village for the fires or haze last year. Except for one DPRD member in peri-urban S Sumatra who claimed the local government was benefiting from the fires as they could *'skim off money from the emergency fund'*; and another young man in Riau who said the village had been allocated funds for natural disasters, no one else we spoke with mentioned these emergency funds. One village official in peri-urban W Kalimantan seemed to suggest that the village funds could be used for emergencies, but this had to be closely monitored and the use of these funds made transparent. Another official in rural C Kalimantan explained that while there was a community deliberation for disbursement of the village funds, the final decision on expenditure was taken by the village officials. He further said that there was not much flexibility with the village funds once the decision was made and they were typically used for infrastructure.

Apart from the two NGOs who had given training and equipment to the fire fighting groups in the past, there was no presence of NGOs in other locations.

3.6. PEOPLE'S VIEWS AND EXPECTATIONS FOR THE FUTURE

'People will gradually change, but it is stupid to expect them to change overnight.'

- Camat, peri-urban W Kalimantan

Across locations, people expressed uncertainty when discussing their future in the longer term. This was related to their experience in the last one year and many are anxious that the 'no burning' regulation enforced upon them meant they would not be able to provide for their families. While some farmers have continued to burn on a small scale, the fear of being arrested or fined by the authorities still exists. People everywhere strongly felt that it was the government's role to provide a solution and end what is essentially an impasse.

Where the government has provided an

alternative, people tell us these have been ill thought out. In the W Kalimantan locations, where the central government has introduced the *cetak sawah* ('printing' paddy fields) programme, some farmers say the programme is unsuitable because there is no irrigation for planting rice like it is done in Java. The programme is being introduced as an alternative to slash-and-burn, where a government-approved contractor clears a large area of land that belongs to farmers free of cost, using the 'stacking' approach. This land is then supposed to be used for planting paddy.

'Government programmes are like letting go of a child who cannot walk - it will fall.'

- Farmer, peri-urban W Kalimantan

However, in peri-urban W Kalimantan, people say that the programme failed even before it took off because the contractor did a substandard job when clearing the land. Additionally, they have not complained about this as they are not aware of any grievance mechanism. Some say they are unsure about whether they should complain, as no one there knows how much work was the contractor's responsibility and how much they were supposed to do themselves. No one had made this clear to them in the beginning. They have had a visit from an official from the district agriculture office, but apart from agreeing that the land was not yet suitable for planting (because of substandard clearing), he did not give them other suggestions.

Others think the programme was a failure from the beginning because the land here is not suitable for growing 'wet' paddy as it is peatland and there is no irrigation. Another farmer said, '*they* (the government) *told us to plant paddy. But ask them to invite a professor from Java to teach us how wet paddy can be planted on the peatland. Don't ask us, because we don't know.*' Still others feel they would be able to grow rubber or pineapple on the land, but as the name of the programme refers only to paddy production and the government was the one who cleared the land, people say they are unsure if they are allowed to plant anything else but paddy and so will not plant anything on this land as they *'don't want to be blamed'* .

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Problems with 'wet' paddy

In May 2016, 'my father' happened across a contractor and some military officers in the neighbouring village. They said they were supervising clearing of 80 to 100 hectares of land in the sub-district by using heavy machinery. The programme was referred to as *cetak sawah* and it was an initiative of the central government to promote planting of 'wet' paddy without the use of slash-and-burn technique. The contractor told my 'father' if he wanted to be part of the programme, he had to give them permission to clear his land. 20 hectares of land was cleared in the village, out of which 6 hectares belonged to him.

While the contractor cut down the trees and shrubs on these lands, no one in the village was happy with their work. People said the land had not been cleared of the stumps or felled branches and neither had it been levelled. Because the land could not be used, the owners left it as it was and now (September) weeds and shrubs have covered the land and rotten tree braches and stumps have attracted pests and field mice.

A few months after the land was 'cleared', a man from the district agriculture department visited and demanded to know why farmers had not planted paddy on the 'cleared' land. When he was shown the land that had been supposedly 'cleared', he agreed that it would be impossible to plant paddy on the land. He told the farmers to try, but that it would '*definitely fail*' as there was no irrigation.

My 'father' said they had also been told they would be given paddy seeds for planting, but are yet to receive them.

Peri-urban W Kalimantan

Giving example of an NGO programme that distributed 'wet' paddy seeds to a women farmer's group in peri-urban W Kalimantan, people complained that agricultural initiatives by the government or NGOs had largely been irrelevant till now, as they did not listen to what people want. Women farmers here criticised the NGO saying they had tried planting 'wet' paddy seeds distributed last year, but the harvest had been very low. Regardless, the NGO had distributed the 'wet' paddy seeds to them again this year. Additionally, others here felt strongly that if the government was going to help them with an alternative to slash-and-burn, and introduce programmes like '*cetak sawah*', it should provide full support (clearing land, building irrigation, providing seeds and fertilisers) from the government for the first time around and then the farmers could continue from there on.

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'Wet paddy doesn't suit our land'

On my third day, 'my mum' got a phone call. *'Ah, I don't want to go to that meeting, '* she said to me after she hung up the phone. *'It just means wasting my time,'* she added. There was another phone call five minutes later. '*Let's go,*' she said, adding, '*I'm only going because my best friend asked me to come, otherwise I wouldn't go.'*

When I asked her why she didn't want to go for the meeting, she told me it was the women farmers' group meeting facilitated by an NGO in collaboration with the government. *'The group will be given 'wet' paddy seeds, just like last year. We put a lot of hard work into planting the paddy last year, but the harvest was very little compared to what we can get from planting 'dry' paddy,'* she said.

Both of us arrived at the village hall. There were 25 women farmers already in the hall with 2 very young facilitators. One facilitator was busy circulating the attendance sheet and ensuring everyone signed it. Women farmers were divided into 4 groups and another facilitator was asking the groups whose land was going to be used for planting paddy this year.

One young woman asked the facilitators if the seed type would be the same as last year's (wet), explaining that last year they could only grow less than 5 sacks of paddy on 1 hectare land. Others also added that the seed last year was not suitable for their land (peatland). One facilitator told them that another women farmers' group in the next sub-district had produced good quantity of paddy from the same type of seeds and that they needed to learn by that group's example.

'But the seeds do not suit our land, our land is different,' another woman insisted.

'That's why we need to learn as a group,' one facilitator answered, *'we need to disburse the seeds this year and plant this year as well.'* After a while, the meeting was dismissed with the next agenda to decide on the land for planting.

'See, I told you, I was wasting my time,' mum said to me on our way back home. When we recounted the whole incident to 'dad' (who is a village official), he said that the programme had not consulted with the village office before bringing the initiative to the village.

'*They disregard our years of knowledge, or probably they know better than us…probably…',* he said.

Peri-urban W Kalimantan

In rural W Kalimantan, where the village had applied three times for the *cetak sawah* programme, people think it was rejected because the village does not have irrigation. Some others think the government did not want to initiate the programme here as farmers did not have their land ownership certificates.

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Dayaknese farming traditions

One farmer explained to me that slash-and-burn is the only way Dayaknese know to farm. *'Our grandfathers and fathers taught us how to farm. This land is not like the land in Java, without burning the land you will get nothing'*. Having been a farmer for most of his life, he says farming is a long process. As they practice shifting agriculture, every year, farmers have to walk through their land to find fertile land that can then be planted with rice. Sometimes it is not easy to find the land as most of the fertile land near the village is already being used to grow rubber or pepper and he says *'because of this sometimes farmers have to walk very far to find the land.'* The land also has to have trees, as the bigger the trees are, the more fertile the land will be. This also means that when he finally finds the right land to plant, it has to be cleared as it has been left fallow for some years.

Earlier farmers used axes to chop down the trees, which took them days but *'if you had a big family to help you, you could clear a bigger plot of land for planting.'* Now-a-days they can use chainsaws and also ask their neighbours for help to open land *(gotong royong).* After the trees are felled, they have to wait for two to three weeks for the stumps and branches to dry before burning. The burning is a calculated process and farmers take every precaution possible so the fire doesn't spread. Family members and neighbours are invited to guard the fire, depending on the size of the land being burnt, and they will come bringing cans and water sprayers to put out the fire if it spreads. Also everyone there is shown where the nearest water sources are.

They will then start burning the land from its edge so the fire moves toward the centre, all the while keeping the wind direction in mind. *' We need to pay attention while burning as sometimes the fire might 'jump'. To see clearly, we don't burn during the day, but at night.'* They also need to make sure all the branches have burnt, if not they will collect everything and burn again.

When the rain comes, the planting begins. They will help each other in the planting as they did in the burning. For planting, farmers use the '*nugal',* a stick to make a hole in the field and put the rice seeds in these holes. Once the paddy grows, they use pesticides and herbicides to kill the weeds. The traditional way is to clear the weeds by hand, but *'it's very tiring to do that now, spraying herbicide is much easier.'* In six months time, the paddy can be harvested.

Insight from the Digital Storytelling process

Rural W Kalimantan

Nonetheless, there is enthusiasm among some traditional paddy farmers about being able to plant paddy in an alternate way if the programme is initiated. Their traditional way of doing slash-and-burn each year and planting paddy, they say, is difficult. It takes them days to find the land, and every year they have to walk through fields where they had formerly planted paddy to see if the soil had rejuvenated enough to plant again. Sometimes, farmers say, they have to walk to find unopened land farther away from the village, as most of the land near the village already has rubber trees. Those we spoke with wanted to learn to plant paddy differently and as one grandfather said, *'if there are other ways, I want to learn so I can teach my grandchild other ways to do farming.'* Others here, however, are more sceptical as they think the programme will fail as they feel the government will not take the necessary steps to supervise it.

A field cleared for wet paddy was not suitable and lies abandoned

In peri-urban C Kalimantan, many think that even if the government provides a solution, it will be top-down and farmers will have no say in how it affects them. They say this out of experience, explaining that when some farmers from the village had met district officials to discuss alternatives, the officials had not wanted to hear them out. Farmers in rural W Kalimantan too largely agree that a solution from the government will not work as they do not take into account what farmers want and that *'nothing from the government works, anyway.'*

Nevertheless, farmers across locations say they are open to change, provided they get the support they need. As the Village Secretary in rural C Kalimantan told us '*rather than spending money on checking hotspots and making banners, send an expert in peatland agriculture who can teach people other methods for growing on peatland.'* He added that he had heard the government was introducing a programme under the BRG, and hoped this would mean actual help, rather than farmers just receiving seeds. Another HHH father here told about an agriculture expert who had lived in the village at the beginning of the trans-migrant programme and wanted *'someone* (like him) *who would live in the village and show us how to farm differently.'* People emphasized that they wanted someone '*who could show them, rather than tell them'* and wanted the government's help for this. Some farmers told us the government should give them '*a cutting machine* (for cutting trees, shrubs and weeds) *and fertilisers* (as a substitute for the ash from burning)'. Still others felt they should be given chalk as a substitute for the ash that is created by burning the field, to neutralise the soil acidity (a particular problem of peat soils).

In peri-urban S Sumatra, some indigenous Pedamaran farmers told us about the neighbouring trans-migrant village having a 'good' irrigation system that was built when the Javanese trans-migrant families moved to the area. They explained that the Javanese there did not have to slash-and-burn their land for planting paddy and said they had not been aware that it possible to grow irrigated paddy until they saw the trans-migrants doing it. In peri-urban W Kalimantan, a few Dayaknese farmers told us they were keen to learn how to prepare land differently, as they had seen some trans-migrant farmers in the area do, but had been too shy to approach them. In both locations, people felt they could change if they were given guidance and initial support.

In both S Sumatra locations, where some blamed the companies for starting the bigger fires, people said the regulation should be different for companies and small farmers. Even the village head here felt that while the enforcement needed to be strong to prevent the fires, there should be some flexibility for the small farmers. Some others felt it was almost

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Haze is not the health problem we worry about

In our village adults talked about 'glue sniffing' being a bigger problem than the haze. Many parents we spoke to said glue sniffing had been on the rise among adolescent (mostly senior high school) boys and wanted the authorities to take stricter action about this. One of our neighbours said, *'our problem is not the haze, but the IBON (glue paste). The government should ban this.'*

Team observation, peri-urban S Sumatra

impossible for the government to control the slash-and-burn practice unless it could provide an alternative and said, *'we don't need regulations because they will never work. It's better if every sub-district has their own fire fighters'* (teacher, peri-urban S Sumatra).

What else do people want?

Across locations, parents' aspirations are related to giving a better life to their children. There is a clear perceived link between education and employment opportunities and as parents did not see farming or plantation work as a future for their children, education was valued. Many parents in rural S Sumatra shared their hopes to be able to send their children to university so that *'my child doesn't end up like me* (a rubber farmer).' In peri-urban W Kalimantan, where a new international airport is being proposed to be built, some parents wanted their children to study up till senior high school level and work as ground staff at the airport. Aspirations were similar for boys and girls, with parents hoping that their children will be able to continue to higher education and *'have a permanent job in an office'* (HHH mother, peri-urban S Sumatra). All except one boy (in rural S Sumatra who wanted to be a rubber farmer) we chatted with said they did not see farming or plantation work as an option for them. While most children, regardless of their gender, indicated their aspiration to be doctors, nurses, teachers, police, military and civil servants, one girl wanted to be an Islamic scholar (peri-urban C Kalimantan), some children in Riau hoped to work in the recently opened *Indomaret* (Indonesian supermarket chain) and another boy in rural C Kalimantan aspired to work as a fire fighter.

'White gold' - with rubber prices low, this family in W Kalimantan hope that crops like white pepper can better provide for their family

In locations where road access was a problem (C Kalimantan, rural W Kalimantan and rural S Sumatra), many adults and children hoped for improved accessibility, associating roads with development of the village, as well as better financial prospects for themselves. One HHH father in rural S Sumatra wanted a better road so he could open a *warung* nearer to the road. An HHH father in rural W Kalimantan explained the reason for the price of goods (food and household items, clothes) being higher in the village (as compared to the nearby towns) as vehicles being charged more to carry goods because of poor road conditions. In rural C Kalimantan, adolescents we spoke to emphasized how difficult it was for them to reach school, especially during the rainy season (30-40 minutes on a dirt road by motorbike) and talked about wanting to ride their motorbikes on an asphalt road, someday.

In different locations, adults also spoke about wanting improved/increased livelihood opportunities. In rural C Kalimantan, where most men were working as miners or in

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Higher priorities than dealing with haze

A better equipped puskesmas

- S Sumatra, peri-urban W Kalimantan

Steady supply of electricity

-W Kalimantan

Clean drinking water

-Rural W Kalimantan

construction outside the village, wives hoped for work opportunities nearby so their husbands could stay home with the family. In Jambi, rural W Kalimantan and S Sumatra, rubber farmers were concerned about the steady decline in rubber prices and while some hoped the price stabilised, others said they had begun to think of alternatives like planting palm oil trees.

IMPLICATIONS

STUDY IMPLICATIONS

The following implications are drawn from the many conversations that formed the basis of this study, with different generations, in different families and across the study locations. This section intends to convey their thoughts rather than the study team's interpretations.

Health

People across locations do not see the haze as having a longer-term impact on their or their children's health. As they feel they have largely adapted to the almost-yearly haze, they regard the symptoms (if they note any) only as causing minor discomfort. There is limited-to-no access to information on long-term health impacts of the haze. At present, most of the information about health impacts is word-of-mouth (through health professionals, who are not informing people of the long term health impacts, and teachers, who say they do not have sufficient knowledge about the health impacts of haze) or through TV.

Many people told us that the information they get is limited to telling them to wear masks, without any additional information about the reasons they should do this and the possible consequences if they do not. Information dissemination about health impacts of haze needs to be structured in a way that is accessible to and resonates with people of all ages. The toxic nature of the smoke along with how it affects lungs in the longer term needs to be highlighted, rather than the mild discomforts which might be felt during times of haze.

As children seem to like wearing printed cloth masks more than the hospital-type masks, one way to influence them to wear masks potentially could be through promoting these masks as a 'cool' option and/or developing 'cooler' designs for more effective mask types. Simple messages explaining the need to wear masks and linking this to longer term health issues may also help adults understand the need for change. People need to know why preventive measures are important before they can change their behaviour.

School closures

The school closures across locations are, for most part, determined by the district education department, which is said to base its decision on the haze levels throughout the district. People repeatedly pointed out that the haze is not uniform across a district and it has been noted that schools in the village have been closed even on days when the weather was clear. The decision to open or close the schools may be better left to the local school authorities, as most live in the general area of the schools. Schools could potentially start the school day later, after most of the morning haze has cleared, and keep the students until later in the day.

The team also queries the decision of sending students home from school, particularly when children might be unsupervised with the parents out at work, students not going straight home and staying outdoors to play with friends. Schools are concrete buildings that can be sealed (by closing doors and other ventilation) compared to most people's homes in these study locations which are wood and have openings through which haze easily penetrates.

Furthermore keeping children in safer school facilities also provides an opportunity to discuss health implications, preventative actions and does not disrupt school and examination timetables. People feel that the government and schools' policy seems to be based not on students' welfare but on not wanting to accept any responsibility for them being ill.

The school closures also seem to be having an unintended consequence, especially in rural W Kalimantan, where parents who do not want to leave their children home alone, will take them along to their fields. While younger children here play while the adults work, older children say they help out in the field. Either way this increases the risk of exposure to fire and smoke when they would be better off at school.

Regulation and enforcement

For most people, the practice of slash-and-burn has been passed on through generations. They have a deep understanding of the process and have careful, systematic practices in place to control the fires from spreading. People do not see their practice as that which causes the bigger fires or the heavy haze but rather blame accidents such as careless disposal of cigarettes.

The ban on burning has been enforced strictly in many locations on small farmers and company-owned plantations alike, when people feel a distinction is necessary between the two. Furthermore, as people share, even when the company-owned plantations are penalised by the government, they can afford to pay any fines and can also afford to use different methods for clearing land, such as mechanical means, if necessary. Small farmers, on the other hand, feel they bear the brunt of stricter enforcement. The fine sums are hefty and in most cases people do not feel they can afford other methods of clearing and fertilising their land. Given this situation, people worry that the only options available to them are to continue small-scale burning, or to stop planting altogether.

Additionally, there is no clarity among people regarding the regulations, with most thinking no burning at all is permitted while others think controlled burning is acceptable, especially on small plots. To make it less confusing for people, the regulations and instructions on slash-and-burn and small fires (for cooking, burning trash, clearing small plots of land) should be simplified, consistent and well explained.

People feel the emphasis should be on providing solutions to the problems of optimizing farming practices for their particular situation and better wildfire prevention measures instead of a blanket ban on all burning. Limiting the size of the land being burned and ensuring that burning is controlled by adopting traditional knowledge are regarded as safe options. Many local authorities too think zero tolerance for burning without providing farmers with an alternate and appropriate solution is unhelpful and would prefer to endorse assisted and controlled burning.

Others feel that as it is careless actions (throwing lit cigarettes, using mosquito coils in the peatland) that cause the bigger fires, enforcement should be focused on prevention of accidents in dry, fire-prone areas rather than intimidating small farmers. In addition, communities themselves can be better encouraged to prevent or mitigate fire risks. At the moment the emphasis on enforcement of the ban and penalties means in some cases that people are afraid to be proactive and help to put out smaller fires (which might spread and result in bigger fires) as they might be blamed for starting these fires. Instead, people could be lauded for putting out these fires, or for acting quickly to contact authorities.

Scare tactics and intimidation are not regarded as an effective long-term strategy for dealing with the problems of fires and haze. As people shared with us, in general these methods are not preventing the practice of slash-and-burn and may result in people becoming more clandestine. For example, farmers start fires on neighbour's lands, contact each other by phone to agree to burn at the same time and avoid authorities by the sheer numbers of small fires requiring investigation, or by burning in the evening and night to avoid detection.

In addition, threatening local government authorities and police with the loss of their

jobs (if they are unable to prevent fires) does not encourage these officials to actually work together with the people in their areas for either the prevention of fires or finding appropriate local solutions. Local authorities feel it is imperative for the government to better understand the geographic and local context and difficulties they face during emergencies to ensure an effective response from them.

Enforcement posters and banners across locations state regulations and penalties without clear information on the lines of communication during emergencies. At the moment, people rely on asking for help by word of mouth and only in one location, by telephoning local task force members directly. The posters and banners could include telephone numbers for concerned authorities to make it easier to contact them in times of emergency.

Future help

While task forces like the MPA, TSA and SATGAS have been instituted at the village or sub-district level in some areas, people indicated that most are only there for the sake of fulfilling requirements. Most were formed *after* the fires last year and are poorly trained and ill-equipped to face bigger fires. Lack of monetary incentives and operational budgets further serves to demotivate them to fulfill their roles.

All the village officials we interacted with suggested that the allocation of Village Funds is usually for physical infrastructure like roads, bridges and boreholes and were not aware that the funds could be allocated more flexibly The funds could potentially be used to provide operational costs for the task forces to ensure their equipment (water pumps and hose) are in working condition.

Many see slash-and-burn as the only affordable way to clear the land that their livelihoods depend upon. They perceive alternatives like 'stacking' to be beyond their financial capacity. People say they are open to alternatives, provided they are given support at the initial stage. Many farmers also feel that they would benefit from practical demonstration in their village of other appropriate farming methods. As one elderly farmer put it, *'don't give us more training, show us how to do it.'* People say that programmes like *cetak sawah*, which is being offered in the W Kalimantan locations, are not contextualized and generally not appropriate to their areas. Furthermore, people also feel they do not have the access to express their opinions about such programmes.

The problem of severe haze is not annual and people recognize that the risks are greater when there are long dry seasons as experienced in 2015. This suggests that special emphasis can be given to prevention programmes and special enforcement measures can be taken in these years when conditions are particularly bad, rather than resource intensive annual measures.

Across locations people emphasize that the almost–yearly haze is not a problem for them. Their children's education (and future prospects), improvement in infrastructure such as roads, steady supply of electricity, clean drinking water supply, flood prevention and having access to better livelihood opportunities are more pressing issues for most people as they perceive these as having a more direct impact on their everyday lives.

ANNEXES


WASPADA
KEBAKARAN HUTAN
Hindari Membuka lahan
Dengan Cara Membakar

ANNEX 1: RESEARCH TEAM

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ANNEX 2: AREAS OF CONVERSATIONS

Context:
(explore before and during haze scenario)

Community: Peri-urban/rural; remoteness; topography; location (to plantations-small holder or big plantation); size of community; religion; livelihood options (main and supplementary); community dynamics- who has social capital, who is listened to, respected

Family/HHH: Size; ages; gender (family tree); religion; number of dependents (children/elderly, people with disabilities); family dynamics (explore power relations); livelihood (main and supplementary); livelihood trends and diversification(changes, reasons for changes); assets (livestock, land, other physical assets); social capital (how this might help during emergency situations like haze)- *within this context explore children's relationship (of dependence or otherwise) with family members, peers, community, service providers and how this changes during haze period*

Distance from services/facilities- schools, health centre, market; access to these services; contact hours (esp. for health centre-does this change during emergencies?)

Knowledge, attitudes and practice

Knowledge/understanding of the cause, effect, process; changing nature/ severity trend- more/less severe, why? generational difference in knowledge /understanding of the issue, history/norms in practice related to forest fires

Knowledge of GOI policies (forestland/peatland management, slash and burn, fund allocation for relief); knowledge of evacuation policies- where to go, whom to contact, when; Knowledge about risk mitigation; medium /sources for information (media, traditional leaders, village heads, schools (for children) etc.) on policies and risk reduction/mitigation, knowledge to prevent fires (traditional, local)

Attitudes: Feelings about the crisis; thoughts on GOI policies, thoughts on effective messaging to get info about risk/policies across (different ways to communicate with different people, age groups)

Practice: Cultural practices that keep the trend going, Personal/ community mechanism (schools, place of worship, health services) in place to control /prevent crisis; should there be certain mechanisms to help?; emergency response and prevention, risk mitigation mechanisms being followed; community cohesion in dealing with crisis; who is prioritised for aid- certain families, children, elderly and why; health seeking behaviour

Consequences and changes

Health: Different health problems (normal vs. haze related); who is more at risk? Understanding of different health risks; ways to keep safe- masks, staying indoors, others, different ways different people keep safe; health service options- contact timings; presence of health service providers, availability of supplies (masks, inhalers) , traditional or local ways? Effect on pregnant mothers, babies

Education: school arrangements during haze- open/close; changes in contact timings; changes in school year commencement/end- how does this affect school experience? delays (school curriculum completion, examinations); less/more holidays; how does school make-up for lost time? Teacher absenteeism, other barriers, relocation of schools

Wellbeing: Emotional; psychological; who is more affected and why?

Short term/long term: migration- who, why them, where, who decides, effects of this? change in access to markets, food prices during haze, relocation of social services, restricted mobility during fires/haze
Economic: change in jobs, income, financial priorities, change in livelihoods- consequences to livestock

Chat, explore, probe, present 'what-if' scenarios, introduce debate, 'some people think, listen, draw, explain, dream, play

Accountability/Responsibility

Key actors of the haze crisis- who is to blame and why? (companies, small holders) some more than others
Who is the first point of contact? Who leads, who is helpful, trusted? Who informs abt fires? Are mechanisms in place- bodies for risk mitigation/reduction? Formation, accountability-partnership and coordination between bodies at community/district level

Government: National/local govt role**,** expectations vs. response: relief aid- type, effectiveness, timeliness, relevance; duplication, good/less good (rank), who got/did not and why-perceived fairness, emergency response, transparency; grievance mechanism; village fund allocation for different groups/ages (children, elderly); uses of funds (haze risk mitigation, environmental management, others) responsibility for fund allocation, transparency of funds allocated, other funds and uses

Community and family: Who is listened to, who helps in mitigation, mechanisms *(link with green box-practice)*; differences between self-help (family, community)/outside help (government, devt. partners); accountability to dependents (children, elderly)- are they thought of in times of crisis, caring roles, are they more in need of support, best way to help

NGO, police, Rangers: direct/indirect actions

Priorities and aspirations

Future priorities: what is valuable now vs. future, best form of future support, what would help- short and long term; preparations for future; roles and responsibilities- community vs. outsiders, self –help vs. needed support; concerns

Aspirations: Parents' aspirations for children- how to achieve, challenges and needed support; children's aspirations for themselves; changing aspiration trends/influences; long/short term aspirations; change in aspirations because of haze? traditional occupations changing?
Aspiration channels, individual vs. community aspirations

Coping and adaptation

Family level: Decision making in the family (overall, health, education, during haze); choices available (out-migration, stay, none); children caring practices before/during haze (changes); dependence vs. independence (cash, food, shelter, clothing, medical)- explore- is this more acute, for some than others, how does this change

Living situation (before/during); safer places during haze; adapting to situations that reoccur-what/how to prepare-money, tools, food stock; change in daily life -disruption to routine- education, livelihood, plans, prospects, work timings, playtime/play spaces, food intake

Different effects for different family members, esp. children (talk to them separately, not reported), do children cope differently, what do people do after- go back to normal or changes

Coping issues-smoke, heat, dirt, no water income-limitations to coping, coping/adaptation timings- different during times of the day/night

Coping mechanisms- religion, kinship ties, community, migration, outside support; **positive deviance-** people who cope well and why

Community level: Social changes; dynamics (cohesion/tensions over accountability); differences among groups; community support and leadership; reciprocity; new challenges,

ANNEX 3: LIST OF PEOPLE WE MET

Our families	
Adult men	44
Adult women	39
Children (boys)	35
Children (girls)	35
The neighbours	
Adult men	120
Adult women	126
Children (boys)	217
Children (girls)	173
Women who were pregnant in 2016	7
Mothers with babies/toddlers	32
Plantation workers	50
Community fire prevention group members (MPA/TSA)	3
Forest Fire Fighting Unit (Manggala Agni)	1
Police	7
Military	2
Village military officers (Babinsa)	3
Head teachers	4
Teachers	24
Other school staff	4
Health service providers	26
Government officials (district, subdistrict, and village level)	29
Others (men)	263
Others (women)	155
Total	1399

ANNEX 4: HOST HOUSEHOLD SELECTION CRITERIA

Affected by air pollution from peatland and forest fires in 2015	31/31 families
Multi-generational families, with school aged children	30/31 families
Three generational families	6/31 families
Families with toddlers or babies	12/31 families
Received aid during haze period in 2015 (adults from the village office, puskesmas, etc.)	6/31 families
Received aid during haze period in 2015 (children from schools)	23/31 families
Family that does not have farmland or practice slash-and-burn	8/31 families

This RCA study was conducted in September 2016 as part of a series of qualitative studies planned under the first year of the new Country Programme (CPAP, 2016-2020) of UNICEF and the Government of Indonesia (GOI). These studies aim to provide insights into issues affecting the lives of children in Indonesia. This particular study sought the perspectives and experiences of people, especially children, affected by air pollution from peatland and forest fires, commonly referred to as 'haze.' The study took place in 8 locations and involved researchers spending extended periods of time living with families in haze affected areas. Through informal interaction with these families and the wider community, researchers sought to understand their experiences.

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