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COMMUNICATION RISK OF STAKEHOLDERS IN PREVENTING FOREST AND LAND FIRES IN RIAU PROVINCE

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Abstract

Riau Province is one of the prone areas of forest and land fires in Indonesia. Fires in Riau have occurred since 1997 and peaked during the period of 2014 to 2015. Since that time, the government and other stakeholders had begun to change the paradigm of forest and land fire prevention, from preventing to handling. This study aims to analyze the communication process among stakeholders in preventing Karhutla (Forest and Land Fires) in Riau Province. The study was conducted by using qualitative methods through semi-structured interview toward 14 informants representing government communication roles, forestry and palm oil industries, researchers, NGOs, mass media, and The Fire Care Community (Masyarakat Peduli Api/MPA). The results of the study explain that all stakeholders have responses that fire intentionally caused by individuals and organized groups on open land, corporate land and community land. The planning and implementation of risk reduction are performed through various communication channels such as Karhutla Task Force, direct communication and media usage, especially WhatsApp, mass media and social media. In general, communication in expert modules is still dominated by government and minus researchers, while in public; the role of stakeholders is almost equal.

Keywords: *Risk Communication, Forest and Land Fires, Fires Prevention, MPA, Province of Riau*

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A. Introduction

Forest and land fires (*Kebakaran Hutan dan Lahan*/ called *Karhutla*) is one of the human ecological problems in Indonesia. Within recent two decades, *Karhutla* followed by smoke haze has brought negative impacts on local, national and regional communities. An effort from stakeholders to solve the problem is limited to post-event handling. The change of *Karhutla*'s paradigm of prevention has become a serious precaution after *Karhutla* in 2014 and 2015 hit several areas in Sumatra and Kalimantan. Preventions are needed because fire handling costs a lot and its impacts are detrimental to the various sectors of life especially in the environmental, business and health sectors. One of *Karhutla* prone-areas that experienced recurring events since 1997 is Riau Province. The indicator is when every dry season comes, there are always hotspots. Data taken from Ministry of Environment and Forestry (KLHK 2016) show that the cumulative number of hotspots since 2011-2015 are most prevalent in Riau reaching 59,614 with details: 2011 (6,849 hotspots); 2012 (7,826 hotspots); 2013 (15,089 hotspots); 2014 (22,588 hotspots); and 2015 (7,262 hotspots). World Bank (2014) reported losses and the losses due to *Karhutla* in Riau 2014 reached USD 935 million. In 2015, the total loss was IDR 221 trillion (World Bank, 2015).

The magnitude of risk due to forest and land fires stimulates the need for risk governance involving stakeholders, i.e. government, researchers, mass media, industry and society (Renn, 2008). In the cycle of disaster risk reduction which is in the preventive phase, there is a series of activities performed to reduce or eliminate disaster risks, both through disaster reduction and the vulnerability of disaster-prone parties (Act Number 24 of 2007 on Disaster). Risk management can be implemented through risk communication among different stakeholders. Risk communication is necessary because each communication role has different experiences, goals and interests (Lundgren & McMakin, 2013).

Found that the human beings as the main cause of *Karhutla*, accordingly, the process of completion must involve changes in human behavior. This effort requires community awareness to cooperate in building commitment to the effort of controlling *Karhutla* (DKPR, 2015). The change can be done through communication involving many roles.

With the reference, communication, education, participation, and public awareness are the approaches used in an integrated way to reach the key groups (World Bank, 2007).

After the tragedy of 2014, the stakeholders in Riau made important changes in the handling of *Karhutla*. One of them formed a *Karhutla* Task Force which consists of government agencies and corporation. Research on various stakeholders is needed to see the perceptions and actions of each communication. Their own worldviews play a major role in the use of hazard and risk terms in communication (Scheer et al., 2014). Reverse risk communication research is done in a disaster assessment because in the true sense of the fundamentals, the actual social of drive of risk upon the danger in projected future (Beck, 2015).

Risk communication approaches are interesting because it plays an important role in responding to changes in *Karhutla* in risk management. Risk communication promotes the exchange of assessments, forecasts, and opinions on hazards and risks among the various stakeholders involved. Thus, risk communication management requires collaboration and coordination between different stakeholders, such as governments, corporations, media, scientists, advocacy groups, and communities (Leiss & Chociolko, 1994; Renn, 2008; Höppner et al., 2012; Scheer et al., 2014).

The study of risk communication on recent cases investigates the cases of health risks, natural disaster risks and nuclear risks. The research on risk communication of *Karhutla* prevention has not been done yet in Indonesia. In addition, most of *Karhutla*'s research is on engineering sector. Social research is more focused on issues of policy, sociology and empowerment. Thus, risk communication research is appealing to be done and it becomes a novelty. This study aims to analyze the communication process between stakeholders upon prevention of *Karhutla* in Riau Province. The approach uses a risk management model consisting of four stages: (1) Perception as a source of the *Karhutla* problem; (2) Communication in estimation of leverage of *Karhutla*; (3) Communication in the planning of *Karhutla* risk reduction; and (4) Communication in the implementation of *Karhutla* risk reduction.

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B. Method

This research is designed using qualitative methods by examining the meaning of individuals or groups that are perceived as human or social problems by creating a comprehensive and complex picture presented in words, reporting the views which are obtained from detailed information sources in the natural setting. Qualitative researchers collected the data in the field with sensitivity to the people examined, and studying data inductively to initiate patterns or themes (Creswell, 2007). This qualitative research aims to gain an in-depth understanding of a problem (Denzin & Lincoln, 2005).

The study was conducted in Riau Province from December 2016 to August 2017. Data were collected through semi-structured interviews of forest and land forest fire communication roles in Riau by using a risk communication process model (Leiss, 1994, Leiss & Chociolko, 1994), industry, researchers, mass media, and society (general and specific). The research informants were 14 people from 6 stakeholder groups: (1) Government: Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG) Pekanbaru, Natural Resource Conservation Agency (BBKSDA) Riau, and Regional Board for Disaster Management (BPBD) Riau; (2) Corporations: RAPP, Asian Agri, and Gapki Riau; (3) Non-Governmental Organizations (NGOs): Jikalahari and Yayasan Mitra Insani (YMI); (4) Researchers: Center for Disaster Studies of Riau University (PSB-UR) and Center for International Forestry Research (CIFOR); (5) Mass media: Green Radio; and (6) MPA: MPA Desa Sepahat (Bengkalis), MPA Desa Segati (Pelalawan), and MPA Kelurahan Mundam (Dumai). Data triangulation has done by completing interviews with field observation and secondary data from various institutions. The collected data were processed and analyzed by using interactive model data analysis consisting of three steps: data condensation, data presentation and conclusion / verification (Miles et al., 2014).

C. Research Finding

1. Perception of Problems Source of *Karhutla*

Perception is the essence of communication, because it deals with the interpretation of meaning or explanation of information. Stakeholders have their respective perceptions of the causes of *Karhutla* in Riau. *Karhutla* in Riau is caused by many factors, all of which refer to human behavior both directly and indirectly. The immediate cause is human's combustion intentionally or unintentionally. The intentional action is performed to the clearance of agricultural land and plantations. The unintentional is usually executed by the anglers in the river or canals around the prone-area. Furthermore there is the cultivator who made the campfire, then forget to turn the campfire off until it causes a fire.

One of the most prominent facts is the large number of open access land namely the used land of concession of tenure rights (HPH) which is abandoned after its concession period, until it is controlled by the encroachers. Illegal land tenure by them is considered as "legitimate" because they receive the legality of the village head, urban village head or sub-district head. The encroachers are generally the investors (local term: *cukong*). In Riau, there were also many cases of local indigenous land sales by local leaders to migrants.

The government contends that the climate in Riau is not the cause of fires naturally. According to BMKG Riau, it has an equatorial climate type, therefore a fire and smoke disaster from other regions will lead to Pekanbaru and even penetrate to neighboring countries such as Singapore and Malaysia. BBKSDA Riau also believes that the most influencing factor to *Karhutla* incident is human behavior. In addition, the condition of peat soil in Riau caused the fire more deteriorative. The fires on community land are generally occured only as small spots.

When every *Karhutla* occurs in Riau, it usually corporations often blamed as the perpetrators, especially corporations related in forestry and plantation sectors. But forestry corporations refute. According to them, the burning of land is detrimental, because the burned wood can not be used as pulp. Palm oil corporations argue that *Karhutla* is caused by human

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activities, whether intentional or not. Unintentional factor such as when someone throws fire, then it causes fire. Meanwhile, the intentional action is performed by existence of organized and unorganized groups. According to corporations, the burning palm plantations are usually outside the company's arc, especially in open access areas.

NGO says that the main problem of *Karhutla* in Riau is in the upstream sector, i.e. the monopoly of forest area by forestry industry (HTI) and oil palm plantation ccorporations. Monopoly occurs because environmental governance and forestry have never been regenerated by the government. Other problems are related to tenure conflicts in Riau, especially in open access land which is dominated by the brokers of plantation and the encroachers from outside Riau. NGOs affirm that the main cause of *Karhutla* is because of human factors, environmental and natural resource factors. The most common cause is the clearing of plantation land by corporations, the brokers and the community.

The researcher finds an "invisible hand", namely persons or corporations playing beyond the scenes in cases of forest and land burning. They are unknown, but then with money, someone can pay others to burn, and then promote the land in unidentified ways until it comes to buyers. Burning is often performed for land clearing for oil palm plantations. The perpetrators of land burning involves corporations and communities, which the community itself is divided into two small farmers who work on the land of about 2 hectares and the brokers who have hundreds to thousands hectares of land. Corporations and the brokers are usually organized the fires.

The mass media explained based on facts observed in the field, that the cause of *Karhutla* in Riau is because of deliberately burned action. There are two possible fires perpetrators, i.e. companies and society. But it might also the company ordered the people to do the burning. The result of their investigation finds many fires occurred in the company's concession areas and open access areas owned by the elements of capital owners from various groups. But fires may also happen on community land.

MPA explains the fire that happens in the village mostly occurs due to farmers; they do the small-scale burning. In the fields, farmers

usually do the weeds whacked and clear bushes then, collect and burn it. The problems arise when the farmer leaves and forgets to extinguish the fire. As a result, within 3-4 hours, especially in peat lands, fires will extend. Because of the characteristics of peat lands, even though there is no fire on the surface, however under the surface there is still a lot of fire. Besides of farmers, the unintentional perpetrator fires are the anglers who are fishing in the peat canals that create fire to keep mosquitoes away.

Table 1. Perception Problems Source of Karhutla

Num.	Stakeholders	Cause factor	Performer	Motives	Area
1	Government	Human	Organized Individual	Intentional Unintentional	Open access Corporations Community
2	Corporations	Human	Organized Individual	Intentional Unintentional	Open access
3	Non-Governmental Organizations	Human	Organized Individual	Intentional	Corporations Open access Community
4	Researchers	Human	Organized Individual	Intentional	Open access Corporations Community
5	Mass media	Human	Organized Individual	Intentional	Open access Corporations Community
6	MPA	Human	Individual	Intentional Unintentional	Open access Community

2. Communication Process in *Karhutla* Impact Assessment

The potential for environmental impacts has not been widely studied by government agencies, particularly at the regional level. BMKG has never conducted an assessment of environmental damage due to *Karhutla*, but sees the economic impact on airlines due to limited visibility. BPBD also does not have the roles and functions to assess the environmental damage caused by *Karhutla*, until it does not handle the damage after the occurrence of *Karhutla*. While BBKSDA measuring the damage within the conservation area, outside conservation is the authority of the *Karhutla* Task Force.

The damage caused by *Karhutla* is being concerned to the corporation as it relates to its business activities. According to the RAPP,

the burned land leads to reduction of the nutrients or organic elements, and then when it is managed, it requires additional treatment with consequences of taking extra costs. Gapki Riau and Asian Agri mentioned that the palm oil companies experienced severe disadvantages due to *Karhutla*. Short-term losses experienced by the corporation if there is a burnt garden area. While long-term smog will reduce the production significantly because it interferes with the activity of oil palm pollinating insect *Elaeidobius kamerunicus*.

NGO views the environmental damage caused by *Karhutla* in Riau, where is in concession area or industrial forestry and palm oil company area. Those areas were mostly occupied by the brokers, inside of protected forest areas, conservation, national parks and wildlife sanctuaries. Jikalahari obtains information on the potential impact of direct *Karhutla* from the community and conducts investigations in the corporation area. The results of the investigation data are then reported to the local government, KLHK and law enforcement. The data are also published through website on jikalahari.or.id, Facebook Jikalahari, twitter @_JIKALAHARI_ and Instagram @jikalahari.

Researcher assesses that the environmental damage caused by *Karhutla* is very expensive. For example, the extinction of invaluable biodiversity species like microorganisms and unidentified certain species. The damage cannot be recovered. Other environmental effects are the loss of water sources and centers of the peat domes in various places. Even today, the world's researchers have not found yet a method of calculating the peat damaged by *Karhutla*. In the environmental damage study, the researcher communicates by collecting data from the community and conducting FGD activities. The data are then informed to the government.

The mass media considers the environmental damage occurring continuously due to lack of pressure to the government and corporations. The media usually collects environmental damage data directly from the field as well as from governments, researchers and NGOs. Investigations are conducted in fire locations, especially in corporate areas and open access lands. The results of the investigation are reported in the form of

radio coverage broadcast on the Kantor Berita Radio (KBR) network through out Indonesia. Not only being broadcasted via radio about the coverage of *Karhutla*, but it is also broadcasted live streaming and the news script is published on portalgreenradio.com website. The socio-economic impacts of *Karhutla* are: (1) the demise of the economic activities of the people which is directly adjacent to the fire area; (2) disruption of social and trade activities in urban areas due to haze; and (3) health problems, especially ISPA.

According to the MPA, the biggest environmental impact of *Karhutla* is on oil palm plantations owned by local people. In the long-term, the burnt fields that may turn into shrubs or wild grasslands will potentially be burnt again in the dry season. Villagers with burnt areas run into direct socioeconomic impacts. Economic and educational activities of villagers have significant disruption during the event. The greatest economic impact is perceived by the owner of the garden whose land is burned by losses due to the destruction of the main source of income.

3. Communication Process in *Karhutla* Risk Reduction Planning

The government has a risk reduction planning program through the establishment of the *Karhutla* Task Force. BMKG explains that *Karhutla* risk reduction can be accomplished if the information submitted is properly implemented by related parties. BMKG is the first party providing information on *Karhutla* risk reduction through current weather conditions messages distributed in WhatsApp, Twitter, Instagram and Facebook groups. Such information is used as a basis for preparing ready status in regencies and cities. Intensive communication of the government is usually performed by post *Karhutla* Task Force at Airfield of Roesmin Norjadin Pekanbaru. Although the task force has been disbanded, the discussion continues through WhatsApp.

Corporations have risk reduction policies through sustainable forest management policy monitored by governments and other stakeholders. Gapki performs risk reduction by emphasizing members to not to be involved in case of fire. One of them is going through the certification program of Indonesian Sustainable Palm Oil (ISPO) and

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Roundtable on Sustainable Palm Oil (RSPO). Risk reduction is also performed by the Asian Agri through the Free Fire Village Program (FFVP) which is an MPA empowerment program in the villages around the company; villages that are able to prevent fires less than 0.5 hectares will receive incentives. The program is designed by the corporation through direct communication with villagers and local government.

NGO Jikalahari explains in the context of *Karhutla* risk reduction, there are three important aspects that must be handled: (1) improving the governance of environment and forestry; (2) reducing company monopoly especially on the peat area; and (3) resolving tenure problems such as the conflict tradition with corporations, local community conflicts with corporations, and government conflicts with the brokers in conservation areas. NGO YMI plans a risk reduction activity through village community assistance with the goal of realizing a recovering village. The program aims to improve production and consumption capabilities by preventing peatland fires as a source of livelihood.

Researchers of PSB-UR and CIFOR encourage community awareness through MPA empowerment activities in *Karhutla* prone-areas. The volunteers are community companion for the prevention of *Karhutla* by prioritizing the social capital of the community. Bottom-up communication is by listening to people's aspirations as a basis for implementing activities, rather than simply banning the burning without solutions. Funding activities obtained by researchers from the government and funding from abroad. Communication in the implementation of activities is through the approach of village elite groups and directly to the community.

Green Radio argues that Riau is the "heart" of complex environmental issues. Therefore media is needed to help improving environmental conditions through its role as a source of information, education and social control to reduce environmental destruction and law enforcement related to environmental issues. The media may perform a pressure for the authorities in carrying out the regulation, as well as overseeing the corporation in performing its business functions in order to be “pro” to the environment. Media communication activities are conducted through an editorial policy that focuses on environmental reporting.

The risk reduction of rural communities of *Karhutla* in fire prone-areas is done by the establishment of MPA. MPA designs the prevention activities of *Karhutla* through patrol and socialization to the community. Some MPAs already have institutional legality from the village and have built offices. For example MPA Sepahat Village was formed based on the Village Regulation Sepahat Bukit Batu District Bengkalis District No. 07 of 2009 on the Establishment of MPA. The MPA has a permanent office of corporate assistance with staff in charge of administration of the activities of its members. To improve the performance and institutional capacity of the MPA, they build communication networks with various stakeholders such as governments, NGOs, corporations, researchers and the media.

Figure 1. Integrated patrol post and fire monitoring tower in Desa Sepahat for coordination of fire prevention of MPA and stakeholders.

4. Communication Process on Implementation of *Karhutla* Risk Reduction

The government performs *Karhutla* risk reduction activities through the *Karhutla* Task Force. Task force of various government agencies, every day monitors the hotspots and fire spots. BMKG describes the implementation of risk management for prevention of *Karhutla* based on the recommendation of its agency through information since the beginning of the dry season as the initial step of anticipating *Karhutla*. BMKG information is continually updated via Twitter, Instagram, Facebook and delivered via WhatsApp. In the field, BBKSDA, through

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Manggala Agni, conducts an integrated patrol involving MPA, Indonesian National Armed Forces (TNI), and Indonesian National Police (POLRI). If the number of hotspots increases, the patrols will be more intense. The Manggala Agni team is equipped with Smartphone to monitor the movement and performance monitoring.

Gapki reduces the risks through early warning using circular communication, appeal, and forwarding government information to its members. In addition, it examines the risk reduction of fire fighter patrol and operates the Fire Danger Rating System (FDRS) in the company and village area around the company. Asian Agri in particular is coordinating with MPA crew leader for socialization of *Karhutla* prevention. Coordination is performed through WhatsApp Group (WAG) "Desa Bebas Api Asian Agri" consisting of crew leaders who are given incentives every month. Meanwhile, RAPP cooperates with NGO Blue Green Foundation and NGO *Rumah Pohon* for raising awareness to not to burn the land and encourages the strengthening of economic resilience and community food security.

NGO Jikalahari undertakes risk reduction activities through regular investigations from 2013 to 2016 and reports 49 companies to Ministry of Environment and Forestry and Riau Police. Then it reports 20 companies to the Corruption Eradication Commission (KPK), 19 companies reported to Peat Restoration Agency (BRG) to enforce the law, both administrative, civil and criminal. In addition, Citizen Law Suit (litigation lawsuit) is along with several components such as Indonesian Forum for the Environment (WALHI) Riau, Rumah Budaya Siku Keluang, Malay Customary Institution (LAM) Riau, and legal team. YMI undertakes risk reduction activities through village assistance and identification of potential fire through mapping sources of areas at risk of fire.

Mass media makes efforts to prevent *Karhutla* through the delivery of information to the public. Green Radio conducts news activities on air, on line and off water. On-air and on-line activities examine media functions, while off-air builds networks and crosschecks the field. The running off-air program is an expedition to collect data and facts in the field. The idea of finding the cause of *Karhutla* is accomplished through

discussions with the government. Green Radio runs regular-daily, environmental news programs and special Mahogany programs are twice a week. When there is a heavy smoke haze, there is an additional program named "Perangi Asap" in the form of direct reports from the field that appears every 15-30 minutes in the form of breaking news.

Researcher launches the risk reduction programs through community assistance in collaboration with other institutions, especially government and NGOs. Activities include community empowerment, socialization and MPA training. Communications with the community are conducted through various joint activities such as the creation of a canal bloc and the management of agricultural land. The activity is conducted in the form of learning together with the community to solve *Karhutla* problems in the village.

The implementation of *Karhutla* prevention activities by MPA is performed through patrols or roving guides. Every patrolling member is required to socialize to the people they meet to not to do combustion. MPA members are also equipped with extinguishers to turn off the small scale fires. If MPA members experience obstacles in their outages, immediately they will contact Manggala Agni and BPBD to assist the extinguishing process. In vulnerable conditions, MPA also requests the assistance of the village government to deliver warning information to not to burn the land to the residents.

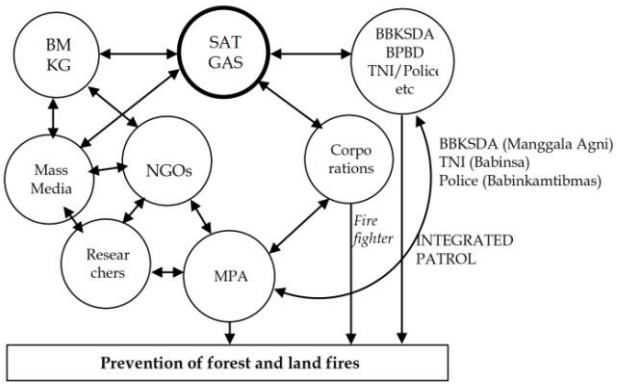

Figure 2. The communication channel of Karhutla prevention activities in Riau

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D. Discussion

The practice of *Karhutla* prevention in Riau is executed in two quarters, namely expert quarter with the formation of *Karhutla* Task Force. While in the technical quarter, the implementation involves the community as the spearhead of prevention of *Karhutla* in the fire prone-areas. Communication among stakeholders is performed through the *Karhutla* Task Force forum involving government, military, police and corporations. Other stakeholders such as corporations, researchers, mass media, NGOs and MPAs are less involved. The *Karhutla* Task Force in Riau is formed at the time of Emergency *Karhutla* in Emergency Condition, the status issued by the Governor after at least two districts / cities set the alert status. By 2017, the Riau Provincial Government established the *Karhutla* Emergency Standby from January 23 to April 27, 2017, then it extended again until 30 November 2017 in consideration of the potential dryness of the El Nino effect during the dry season within this period.

Figure 3. Fire prevention messages and FDRS boards in Desa Segati

The establishment of the Task Force is based on Governor Regulation (Pergub) Riau No. 1 of 2015 on Permanent Procedures of Forest Fire and Land Fire Control in Riau Province. The regulation states that the control includes pre-disaster, during disaster and post disaster. Risk reduction a position is in pre-disaster period includes prevention and mitigation and preparedness. However looking at the status of *Karhutla* Emergency Alert is only executed when the incident is more susceptible to

the role of the *Karhutla* Task Force in the event of disaster. While the function of preventing *Karhutla* has not been performed in an organized manner especially in safe period, by improving the source of the problem.

Communication in Task Force forum is performed through WhatsApp channel , an instant messaging application, allowing users to send and to receive messages in the form of text, photos, audio, video, location, links and contacts. WhatsApp also provides the WAG forming feature for users who want to communicate in groups. WhatsApp is currently a popular app because it can be installed in Android apps, iOS, BlackBerry, Symbian and Windows Phone, thus it gives convenience for users with different devices. *Karhutla* Task Force forum uses this application in the form of Task Force WAG as well as small groups such as Land Task Force, Air Task Force, and so forth.

The use of the WhatsApp app as a formal communication channel is an interesting finding, as communication between stakeholders, especially government agencies, has penetrated bureaucratic barriers identical to traditional channels of communication, such as direct audiences or official letters. Stakeholders from government elements reveals that through WAG messages can be quickly received and responded by all group members. This condition is important to be considered in the standby condition of *Karhutla* so that fire prevention can be accomplished as early as possible to reduce the risk of *Karhutla*. Interestingly, the use of WAG is also performed to the community level because MPA also has a WAG for internal communication and WAG for communicating with other stakeholders.

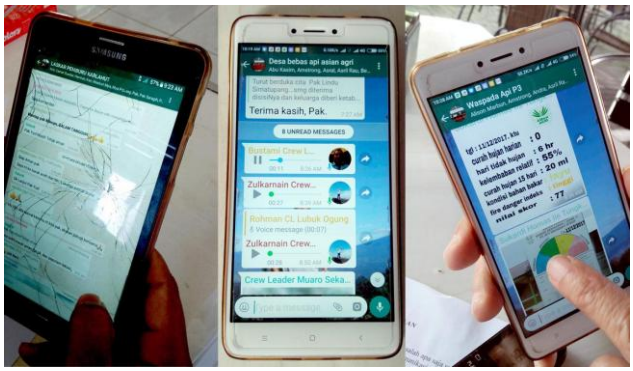

Figure 4. Communication activity in WAG

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The receptiveness of communication in *Karhutla* risk reduction is important to accelerate the resolution of the problem. Because according to Höppner et al. (2012), the focus of risk communication lies in structuring dialogue and deliberations among stakeholders to enable mutual understanding in solving problems. The focus is on dialogical two-way communication between actors such as experts, decision makers and key stakeholders. It also explicitly seeks to involve the community in an interactive communication process.

Although the communication of *Karhutla* prevention in Riau has been executed better, but there is still communication gap between the communication in expert quarter and in public quarter such as which Leiss (1994) and Leiss & Chociolko (1994) brings to the communication actors involved such as government institutions, industry, research institutes, media, and society. Communication in expert quarter involves actors from government, industry and research institutions. While in public quarters, it involves government actors, mass media and society. The most prominent communication gap occurs in expert quarters with less involved research institutions in *Karhutla* risk reduction. The most dominant communications actors in the expert quarters are government agencies including elements of TNI and POLRI. For the case, in Riau, researcher actually more comes into the public quarter by doing assistance to the community.

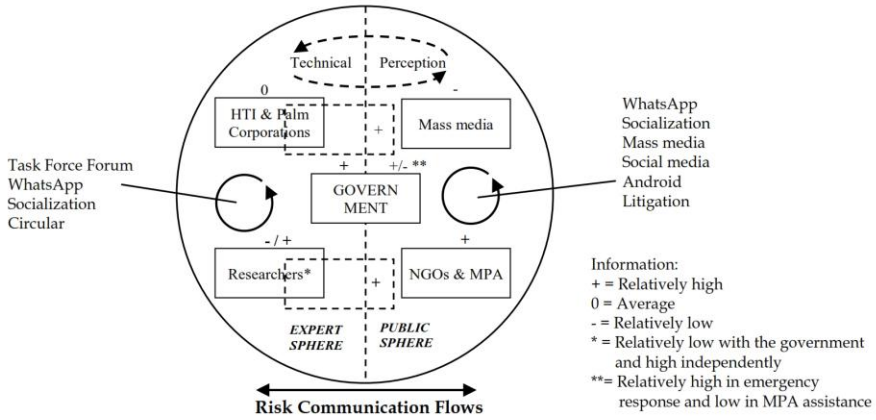

Figure 5. Communication risk prevention of Karhutla in Riau

Figure 5 illustrates the communication flow of prevention risk of *Karhutla* in Riau refers to risk communication flow model of Leiss (1994) and Leiss & Chociolko (1994). In the flow of communication, the expert quarter uses the *Karhutla* Task Force forum, WhatsApp, socialization at the stakeholder level and circular communications conducted by the corporate association. While in the public quarter, communication is performed by using WhatsApp, socialization to the public, mass media, social media, Android applications and litigation by NGOs. The use of multiple channels of communication in the prevention of *Karhutla* is important because risk communication is a form of communication that, like other forms, is represented by traditional communication models. Means that there is a communication source that generates messages across the channel to the receiver. Nevertheless, we find communication gaps in "expert sphere" particularly in *Karhutla* Task Force with dominance by government communication actors. Whereas in order to reach a consensus on the prevention of karhutla all stakeholder need to be involved so that there is a common meaning between technical risk and perceived risk.

E. Conclusion

Some *Karhutla*'s stakeholders in Riau have perceptions that *Karhutla* is due to human behavior that carries out intentional combustion and a small number of unintentional cases. The perpetrators comes from various parties, either individually or organized groups in open access, corporations and communities. The impacts of environmental damage that are assessed and addressed are most of the environmental impacts of deforestation, land degradation and crop damage. Socio-economic concerned issues are the disruption of business activities, especially aviation, the destruction of the economic resources of the community and the disruption of educational activities.

The communication of *Karhutla* risk reduction is examined through stakeholder internal communication, FGD between stakeholders, mass media, social media, WhatsApp and WAG, and the socialization of one stakeholder to other stakeholders. Risk reduction activities in the field are

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held through direct socialization, circular communications, mass media broadcasts, social media campaigns, interactions in WAG, use of Android apps, and litigation.

Researcher sees the prevention of *Karhutla* in Riau newly coordinated in hazardous conditions or during a disaster through the formation of *Karhutla* Task Force so that stakeholders need to build communication on mitigation aspects. Especially, communication to address the upstream problems such as environmental governance and forestry, corporate expansion in peatlands, encroachment of conservation areas, and tenure problems which cause land conflicts as one of the root causes of fire problems.

In general, communication on expert quarter is still dominated by the government. The role of researchers in the expert quarter has not been accommodated by the government therefore the researchers do more technical activities and assistance in the field. Though ideally, researchers have a strategic role in the expert quarter in order to provide scientific ideas to reduce the risk of *Karhutla*. We recommend that the expert quarter, especially through the *Karhutla* Task Force forum discusses the cycle of disaster of *Karhutla* starting from prevention and mitigation efforts by involving all stakeholders. The implementation of *Karhutla* risk reduction can not only be dominated by certain stakeholder groups but it needs to involve all stakeholders to the level of the site.

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