

Management of Smoke Hazes/Smog with Adverse Effects on Health

Situation

1. At present smoke hazes regularly occur in the northern and southern regions. The causes of the problems in these two regions are, however, different. In the north, the main cause is the burning of forest and agricultural areas, while in the south the problems are caused by natural sources in neighboring countries. Therefore, solutions may be different. Although this document will review and present mostly the situation in the northern region, it will present preventive measures in a manner as comprehensive as possible.

2. Between February and April every year, 8 provinces in the upper northern region of Thailand often see smoke hazes occur with a large amount of particulates exceeding the standard level (the standard PM₁₀ is 120 micrograms per cubic meters), while the Air Quality Index (AQI) indicates adverse effects on health. According to the air quality surveillance in the upper northern region conducted by the Department of Pollution Control between 2007 and 2012, each province saw a number of days and amounts of dust and haze exceeding the standard level on a regular basis as well as recording the highest PM₁₀ value as follows:

3. Table showing the measurement of the air quality of particulates in 8 upper northern provinces (January-April 2007-2012)::

Province	No. of stations (station)	No. of days exceeding the limit (day)						Highest values (mcg/m ³) In 5 years
		2007	2008	2009	2010	2011	2012	
Chiang Mai	3	35	8	21	22	0	17	382.7
Chiang Rai	1	16	4	27	43	2	30	470.8
Lamphun	1	-	-	18	40	0	22	3503
Mae Hong Son	1	28	4	33	37	2	22	518.5
Lampang	4	37	25	36	30	3	26	279.0
Phayao	1	-	-	18	33	5	22	283.4
Nan	1	-	-	16	24	0	16	216.4
Phrae	1	-	-	5	0	1	20	233.2

4. A large amount of smoke haze looks almost like fog is called smog, caused by 4 significant factors:

(1) Forest Fires: Most forest fires occur in dry deciduous dipterocarp forests and mixed deciduous forests. In the El Niño year these forests are even drier. Forest fires are more frequent and spread into vaster evergreen forest areas. The major causes of fires are human doings, both intentional and accidental, especially forest harvesting and hunting. Farmers often burn forest areas to prevent forest fires from getting to their plantations. At the same time, public officials are small in number and cannot look after the entire area. Besides, the current state of knowledge and management is rather limited. In particular, after the Department of Pollution Control, Ministry of Natural Resources and Environment, adopted the zero burning policy from the ASEAN Ministerial Meeting on Smog, attempts were made to develop plans, measures, and regulations by various agencies and inform the public about no burning practice in the farming sector and community rubbish burning. All this was designed to involve public participation to prevent, reduce and solve toxic air from zero burning in a coherent unified manner. In practice, there was no real public participation; so, all the preventive measures and forest fire

circumvention actions did not go very far, while the situation is more likely to worsen in the future.

(2) Use of fire in agricultural areas: Under the pressure to adjust economically, farmers encroach more and more on the forest land to grow economic crops, such as red onions, garlic, sugarcane, maize, soya beans, cabbages, tomatoes and rice. With more farming, one sees more burning of agricultural leftovers as well as more clandestine burning of forest areas for more arable land. Since no attempt has been made to resolve the issue of the state land overlapping that used by the farmers, the encroachment problem seems to get out hand. Coupled with the fact that burning of rice fields is a common practice by highlanders, the situation is quite extensive.

(3) Dust from urban and industrial areas: This includes dust and particulates from traffic, construction, community garbage burning, burning of vacant plots and wasteland as well as land prepared for development, burning without air treatment in cottage industry using fuel in the production process, and burning to produce biomass. They account for one-fourth of the total dust and particulates at present. At the same time, the rapid urbanization and industrialization will contribute to more smoke/haze, adversely affecting air circulation in the urban areas and giving rise to more dust and particulates from various activities.

(4) Smoke/haze from across neighboring countries: There seem to be more smoke/haze problems in Asia, especially in countries sharing the borders with Thailand. It can be seen that the PM₁₀ level in Mae Hong Son province and in Mae Sai district, Chiang Rai province, close to a neighboring country, is very high, compared to the haze monitoring stations in other provinces. The situation is getting worse. In view of the rapid economic development in the ASEAN region, coupled with the climate change, there will be more forest fires, fires in the agriculture sector in Burma, Laos and south China.

5. These four sources are likely to cause more smoke and dust with consequences on several fronts. The health impacts, in particular, will be long-term that society has not yet come to grips with. The impacts will become more serious if there are no appropriate strategies or plans to deal with the issue. Although the origins of the problem are many, the focus should be on the burning of forest and agricultural lands.

Evidence of impacts

6. Health impacts: The Office of Disease Prevention & Control, 10 (Chiang Mai), Department of Disease Control, Ministry of Public Health, conducted follow-up and surveillance exercises of health impacts from forest fires and smoke/haze, collecting data from the patients at local hospitals in 8 upper northern provinces in 2010. It was found that there were more patients suffering from respiratory and cardiovascular diseases, while the smoke/haze situation was at its peak during the 5th-7th weeks: the morbidity rate increased from 435 to 589 people per 100,000 population an increase of more than 8,000 people (based on the figure of about 5.7 million population in 8 northern provinces in December 2010). The research findings of health academics of several institutes in the upper northern region indicated that the haze situation was related to the morbidity rate of respiratory diseases, lung cancer and cardiovascular disease suffered by northern people. The rate was higher than that of other regions of the country, and rural people faced a greater risk than the general public because of the burning activities in their daily life.

7. Social impacts: There are divergent views regarding the causes of forest fires and smoke/haze in the upper northern region. Each side points an accusing finger at others. For example, urban people viewed the situation as caused by highlanders in the forest area encroaching on and burning forests because they wanted to expand their arable land, get rid of agricultural leftovers, or prepare the soil for growing field crops, especially monoculture. People on the high ground viewed the situation as caused by the burning of household leftovers, garbage, burning on the roadsides, urban traffic, industrial plants, and deforestation by capitalists. The

public sector, on the other hand, might attribute the problem to the burning by people who wanted to encroach for more arable land. The people sector thought that the situation was caused by responsible public agencies that did the burning before anyone else in order to reduce the amount of fuel and to ask for more budgets to manage the area. Such divergent understandings led to conflicts in the society. The society might not yet see the seriousness of the issue, but this was one of the reasons why it was not possible to muster cooperation or responsibility to solve the problem collectively.

8. Impacts on the ecosystem: There is diversity in ecology: some ecosystems do not want fire, while others do. However, the lack of understanding of the ecosystems led to a practice of adopting the same policy and treatment in every area, causing imbalance in the system. More forest areas that do not want fire were encroached upon and burnt; more fire risk factors were accumulated. On the other hand, some forest areas need fire as their component. For example, deciduous dipterocarp forests and mixed deciduous forests are managed by no-burning measures. In the past, fire acted as a help to protect raw forests, restore minerals to the soil, stimulate growth of some trees, and get rid of pathogens. Such inappropriate measures, thus, adversely affected the forest structure and ecosystem, leading to accumulation of fuel and more frequent occurrence of violent forest fires in the future. It also distorted the natural cycle and food chain. The deciduous dipterocarp forests and mixed deciduous forests that used to serve as important food sources for animals will be reduced and eventually disappear, affecting the abundance and balance of nature in the future.

Policy, measures and structure of mechanisms to solve the problem

9. With regard to national mechanism, in 2007 the government set up an administrative committee to solve smog problems in the northern region after a serious smog crisis hit the region in the year before. The committee was chaired by Deputy Prime Minister acting on behalf of the Prime Minister. It appointed two sub-committees: one to support the rehabilitation of the ecosystem as a means to prevent and solve haze problems through the participation of local people in Chiang Mai, and the other, consisting of private organizations and civil societies. At present, the committee and the two sub-committees no longer exist. Their terms came to an end when the government went out of office.

10. Later a national committee was set up to manage forest fires and smoke hazes by the Prime Minister's Office order of 126/2552 dated 7 May 2009 signed by Prime Minister Abhisit Vejjajiva. The committee's task was to manage forest fire and haze problems effectively and without delay, integrating the work between all agencies concerned and to be prepared for similar situations in the following year. It was chaired by the Minister of Natural Resources and Environment with permanent secretaries from 11 ministries and directors-general of the departments concerned as members. Thus, the committee was entirely governmental in nature; no other sector was involved. It convened very few meetings, which took place when there was a haze crisis. The budget to support long-term and short-term plans was not realistic; as a consequence, the work in the 8 northern provinces tended to be on an incident-by-incident basis. No long-term solution was put in place.

11. On 3 March 2009 the cabinet approved a project to manage forest fire and haze problems as proposed by the Ministry of Natural Resources and Environment and instructed the Ministry of Public Health to alert and educate people about the problems and their health effects and to prepare necessary medical equipment and personnel for the situation.

12. The National Forest Fire and Haze Management Committee issued an order of 1/2553 dated 31 May 2010 appointing a sub-committee to manage forest fires and hazes in the 8 upper northern provinces. The sub-committee's tasks were to set policies, measures and action plans in an integrative manner in the event the problem occurred, launch publicity campaigns and disseminate information in the upper northern region, set up inter-provincial coordinating centers with plans of operation, coordinate and link information with the central, regional and provincial

authorities, carry out supervision and follow-up on the work to be carried out according to the policy and measures. However, the work was not done on a continuous basis, focusing only on the time when a haze incident occurred. The planning process was not carried out in a timely manner. There was a long-term (5-year) plan, but no attempt was made to implement it. There was no budgetary support, while the evaluation did not correspond with the plan and the situation.

13. In addition, although the agencies at policy level might support and attach importance to forest fire and haze problems with their publicity campaigns, issuance of action plans or recommendations, the action tended to focus on immediate problems. No agency was directly entrusted with the responsibility to carry out the recommendations or proposed guidelines.

14. As to provincial mechanisms, public agencies in the 8 provinces set up their own ad hoc centers to prevent and solve forest fire and haze problems on a yearly basis. These centers acted as focal points for fire and forest fire alert during the dry season at district/small district level. Other public agencies also instructed their workers to enhance their measures to prevent fires and forest fires, control zero burning in the community, agricultural areas, protected forest areas, and national forest reservation areas in the dry season to reduce the possibility of hazes and air pollution. They also disseminated information on hazes and forest fires on a continuing basis. All this, however, was only a contingent measure. Although these agencies were responsible for implementing the policy, the haze and forest fire problems were complex in many dimensions. They tended to work according to the mandate of their ministries. The work was not integrated. Administrative mechanisms at provincial level were not really integrated and not properly carried out because of inherent structural administrative problems. As a consequence, their work lacked a common goal and comprehensive information. They were more involved in short-term or immediate problems and did not pay enough attention to the work continuity. Other problems were related to burdens of routine work, inadequate workforce, insufficient budgets, no plan or guidelines that were supported by research findings.

15. The people sector started to set up mechanisms to solve forest fire and haze problems and to manage natural resources and the environment at provincial, sub-district and basin levels, e.g. in the provinces of Chiang Mai, Mae Hong Son, Nan, Phayao, Chiang Rai, Lamphun, and Lampang. They supported and coordinated with other partners in the planning process but were hampered by issues about their rights and competence, access, budget, level of knowledge, coordination and advocacy. Currently, the public sector does not recognize their status and ability to participate in the problem-solving process. Besides, people organizations and networks are not legally entitled to manage forest fires and forests. They are not the leading agencies; their role is only to provide cooperation with the State. The law does not empower them to act as the leading agencies or have the rights and competency. They do not have the necessary knowledge or are up to date with the situation.

16. Local government organizations have not yet seen the transfer of personnel materialized or received budget allocation for this purpose from the Royal Forest Department. Thus, they do not attach importance to the prevention and control of burning as much as they should, simply because they do not have enough personnel. They also need to develop capacity of local personnel, transfer relevant knowledge to them, provide information on health impacts, and to find necessary budgetary support to meet the challenge of forest fires and hazes when they occur.

17. Support organizations include Community Organizations Development Institute, Thai Health Promotion Foundation, National Council of Farmers, and non-governmental organizations. They have had experience of working closely with the community and problems. They are more flexible in their approach to work and budgetary management than their government counterparts. Yet, they have not participated in the process of planning how to manage forest fires and hazes with the public sector from the people perspective in a systematic manner.

18. Education institutes are interested in studies only in specific fields. They have not carried out practical research and have not come up with any suitable practical solutions.

5. Limitation to work and problem solving

19. So far, government agencies have assumed a major role. There is no serious public participation at every level. Therefore, attempts should be made to involve true public participation at every level by all the haze committees at national, regional, provincial, district, and sub-district levels.

20. Budgets are not allocated in time to meet the challenge. They are inadequate and unable to support people working on the ground at the village and sub-district levels. There are no clear policy measures and regulations for local government organizations to request the necessary budget to tackle the haze issues in particular. For instance, the provincial action plan to manage the quality of the environment follows the same approach throughout the country and does not provide enough support for haze pollution work as it is not included in the local regulations.

21. There is no law that allows the community to exercise their right and duty to take care of the forest in a systematic manner. Thus, people have no right to prepare forest management plans or manage forest fires side by side with the State in a suitable manner. Their duty is to be good citizens but without legal rights. They cannot legally set up groups with their own community rules and regulation. They are also limited in their right to get access to the government budget if the community organizations want to develop forest fire management plans.

22. There is no policy that allows actions to solve problems appropriate to the local contexts. There were several instances in which the land was utilized by the people but was proclaimed to be part of the State's forest area. Their rights have not yet been proved, guaranteed or limited as the case may be (a cabinet resolution in effect since 1999). This has been one of the main reasons why the State is not able to effectively control the encroachment of forest land. Encroachment has been on the increase for farming purposes and is an important cause of a lot of forest fires.

23. There are problems with regard to land rights. There are no official correct land deeds to prove the ownership as laid down by the policy and law, rendering farmers unable to get access to the opportunity to change their agricultural practice from monoculture to integrated forest farming. They are prevented from benefiting from the Forest Farming Act or any other vocational promotion policy designed to reduce burning activities.

24. Although there are many community models and innovations as well as much knowledge in place, they are scattered and cannot be transferred more widely to those who need them. There is no extension to other vicinities. Support is not provided on a regular basis.

Issue to be considered by the National Health Assembly

Requesting the National Health Assembly to consider Document Health Assembly 5/Draft Resolution 7

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