

INSTITUTE OF CURRENT WORLD AFFAIRS

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FORMALIN

P.O. Box 206
Samarinda, East Kalimantan
Indonesia
September 1988

Peter Bird Martin
Executive Director
Institute of Current World Affairs
4 West Wheelock Street
Hanover, NH 03755 USA

Dear Peter,

At dusk on Sunday, June 5, a turbid whirlpool closed over a tanker barge that had been loading Formalin at the P.T. Batu Penggal chemical factory in Samarinda. No one was injured as the barge went down, and the sinking resulted in no noisy mass excitement. But as the whirlpool slowed and the Mahakam River flowed back into its normal silt-laden drift toward the Makassar Straits, Samarinda's government bureaucracy dealt with its first officially recognized hazardous chemical spill into the river.

In a land of no Superfund, weak liability law, and where the army is the only government group geared up to act in emergencies, the response of civilian regional authorities to the Formalin Incident may be typical of what to expect in potential toxic crises in Indonesia. The central government in Jakarta will eventually issue guidelines or regulations on how to react to toxic accidents, but they may be a long time in coming, and will probably have little relationship to the reality of many regional governments' technical, financial, and administrative resources.

I first heard of the sunken barge two days after it had settled on the bottom of the river, as I greeted my neighbors on my way in from a trip out of town. "Did you hear about the ship that sunk?" asked Bella, in her usual line-up of news and gossip. "Full of poison!"

"See, we're developing," quipped her father. "Now we have dangerous chemicals, too. Do you think Greenpeace will come to the Mahakam?"

I couldn't get any more details about the accident for another few days. It had been reported briefly on the radio news the morning before I arrived back in town, then there was no more official word on the incident. A vague note in Suara Kaltim, Samarinda's weekly newspaper, reported the sinking barge five days later, noting its time and location, and reassuring readers that the local and provincial authorities were taking all necessary precautions and investigating the matter, but that no other course of action had yet been decided.

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When I first heard about the sunken Formalin barge, I had little idea what Formalin is, or how serious a hazard a river contaminated with the chemical would pose to people or the aquatic environment. I learned that Formalin is the trade name for a methanol-based formaldehyde product that is a major ingredient in the urea-formaldehyde glue used throughout Samarinda's plywood industries. With a 30% to 40% concentration of formaldehyde, it is highly toxic but will dissipate quickly in water. Acute exposure in humans causes severe skin irritations, stomach and possibly liver damage, severe headaches and other nervous disorders. Long term exposure may result in increased risks of developing a wide range of cancers. But in Indonesia, where life is dangerous enough from moment to moment, and cigarette smoking is almost universal among men and not uncommon among women, raising cancer risks is not something that upsets too many people.

The risks of any toxic exposure for people living along the lower Mahakam River were highlighted when I went to look for the site of the sunken barge. Across the river from the chemical plant, I sought relief from the mid-day sun with a bowl of soto (spicy chicken soup) and a glass of iced coconut juice. The vendor pointed to an unremarkable stretch of the glittering river near where her stall jutted over the water on stilts. "The poison is under there," she stated expressionlessly as she washed the previous customer's dishes in a bucket of river water, setting them to dry in the sun beneath a line of her baby's river-washed T-shirts, but assuring me that the soup had been made with water she had purchased from a neighbor who had a well. Over 10,000 people living downstream from the Formalin factory use the Mahakam River as their only source of water for bathing, washing clothes and dishes. For drinking and cooking, some supplement the river water with rain from roof runoff, collected in buckets and drums, or buy clean water from entrepreneurs who get it either from wells or from Samarinda city supplies. Luckily, the Formalin barge sank downstream from all three intake points for Samarinda's piped water supply. Regional plans for the area indicate that any future industrial development that could endanger the city's piped water supply will also have to be located downstream. Three wood preserving factories upstream from the intakes have also been ordered to relocate by 1995. Conversations along the river in June confirmed that even the brief radio announcement the morning after the barge went down produced a windfall for the water sellers in the area. And fear that any kind of illness appearing during the next week was a result of Formalin poisoning sent a rash of patients to the area's government health clinics with symptoms, psychosomatic or not, that health workers have yet to explain.

I wanted to learn how the government and companies involved had reacted to the sinking of the barge. I tried contacting the management of the chemical company and the owners of the barge, with and without explanations and letters of introduction, and got nowhere. Government agencies were much easier. Armed with an unnerving pile of letters of introduction and research permits, necessary tools for official door-knocking in Indonesia, I made the rounds of city and provincial offices, and sectoral agencies (health, industries, etc.) that were in some way involved in responding to the accident. I suspect what I found is typical

of the way environmental emergencies involving hazardous materials are dealt with in Indonesia in general. Indonesia does have a growing body of environmental protection and industrial safety laws and regulations on the books, but many are not implemented, or even familiar to some of the officials who would be responsible for carrying them out. Procedures for handling non-military emergencies are up to the judgement of whoever takes charge in a pinch. The potential for toxic chemical contamination of resources that people depend on for daily life has increased enormously in places like Samarinda, where industrial development and natural resource exploitation have outstripped the government's capability to regulate some of the dangerous consequences. The government's decision to promote Samarinda as the center of a huge complex of wood processing industries meant that large quantities of the chemicals required by those industries would be manufactured and shipped around the area.

A few days after the barge sank, I met with Abdurrachman, a jovial lawyer who is Secretary to the Mayor of Samarinda, and the city's day-to-day executive. He guessed what I came to ask about right away, remembering my queries from previous occasions. "This week the environment is giving me a headache," he sighed. I found his eagerness to discuss the sunken barge shockingly forthright in an Indonesian context, with undisguised frustration over having been taken by surprise by the need to act, to do something about the load of poison in the river.

Abdurrachman recounted that when the tanker barge went down, no one had a very clear idea who should take care of warning downstream populations that their water supply might be in danger; or of inspecting the sunken barge to see if its seals had been closed or if the toxic cargo had already spilled out; or of attempting to salvage the barge. There were no long-established agreements among the government agencies as to what should be done first, or how any of the work associated with the potential disaster would be paid for. Few people in the government even knew if there was anyone among them with a technical understanding of the kinds of problems that could arise from toxic spills. The technocrats were winging it, but were also very aware that decisions they made would set a precedent for similar incidents bound to occur in Samarinda's industrial future.

Based on a 1987 rule that no one in East Kalimantan had needed to know about before, the provincial government was supposed to take responsibility for coordinating government activities in response to environmental accidents. The rule had been sent out from Jakarta, and ignored. In fact, no one in the environmental bureau, within the governor's office, had much of an idea of how to react quickly. This office, only around for the past two years, has tended to tag along behind others, and then only if its staff is invited. Technical expertise on the 33-person provincial environmental staff is limited, with only one biologist and two engineers. At an initial meeting, called by Abdurrachman and someone on the governor's staff a couple of hours after the barge sank, a motley crew of public officials who could be raised late on Sunday night discussed what, if anything, they should do about the sunken vessel. This group included staff of the governor's

environmental bureau, the harbor, the provincial health department, the city's planning agency, the army, and the regional police. They met until midnight, and issued a bare-bones statement on the accident, along with a mild warning of the hazards of exposure to Formalin, for play on morning news broadcasts of Radio Republik Indonesia, the government station.

The group reassembled in the morning to look at the site of the accident. Somehow, in the previous night's meeting, city officials had ended up pressing for immediate, concrete measures to protect populations from possible exposure, while provincial staff were more willing to wait and see if any damage had been done. So the city ended up organizing the voyage, 5 kilometers downstream from Samarinda's downtown, to look for the sunken barge. But the city has no boat of its own big enough to carry all of the officials who felt a need to go along, nor did the harbor agency. And there was no budget to charter a boat. A Rp. 5 million fund for environmental affairs had been channeled to the economics branch of the city government for 1988, but the money had somehow disappeared. The head of the city's regional development planning agency, Razak Rahim, ended up paying for the chartered boat from his own pocket. As it became obvious to many of the officials who had initially taken interest in the accident that no loose money would be involved in responding to it, they quickly lost interest in the case.

By the end of the first day after the barge sank, it was clear that no one had died from consuming or washing in tainted water. But no one could say for sure whether or not Formalin was leaking into the river. No one from either the barge crew or the factory could remember if the hatches on the barge were open or sealed when it sank. If hatches were adequately sealed, it was possible that the 200 to 300 tons of Formalin that had already been loaded were still safely inside the tanks. If any of the hatches was open, the liquid, denser than water, was probably being drawn slowly toward the Mahakam delta by tidal action at the bottom of the river. If the hatches were closed, the trick would be to raise the barge to the surface or pump the Formalin out, with no leaks back into the river. If the hatches were open, how much of the Formalin had already escaped? Was it possible to determine whether the river had been contaminated to acutely dangerous levels, and where?

A few people in the city government suggested sending divers down to check on the status of the barge seals immediately. It is not clear why this was not done, either by the government or the barge owners. There are plenty of competent divers working in East Kalimantan's offshore oil industry. But hiring them is costly. And apparently, the barge owners had already decided that they wanted to take no responsibility for the barge's cargo.

Unable to determine whether Formalin was escaping from the barge by more direct means, the health department set up a water sampling and testing program to detect formaldehyde in the river. But figuring out appropriate sampling locations and testing procedures took a few days, so the only way to judge whether the sunken barge was posing a hazard during the first few days after the accident

was to keep track of complaints coming to the health clinics in downstream areas and to watch for dead fish in the lower Mahakam River and the delta. Staff at the health clinics were alerted to symptoms of Formalin poisoning, but many of the symptoms of sub-acute poisoning are similar to the major complaints brought by clinic patients in any case. Several health workers believed that a quick rash of possible symptoms was the result of panic, not actual Formalin exposure. But since no one was severely affected at the time, no rigorous diagnosis of possible mild symptoms was carried out.

Throughout discussions about how to get the Formalin out of the river, the bottom line was how to get the companies that had been responsible for creating the problem to take responsibility for clearing it up. Neither the city nor the provincial government really had the resources to handle the job itself, nor the money to pay a salvaging contractor. None of the officials involved was aware of any law that could quickly compel any of the private companies involved to act.

In a simple case, the city or province would simply order the barge owners to raise their vessel off the bottom of the river without allowing its hazardous cargo to leak. In this case, the barge owners, a corporation called P.T. Sinar Pulau Laut, claimed that although the barge was their responsibility, its cargo was not, and they were willing to abandon the barge. The Formalin manufacturer, affiliated with the P.T. Kalimantan group (the Indonesian joint venture company with Georgia Pacific, the American based multinational) refused to accept any responsibility for the contents of the barge, claiming that it had already sold the chemical to another company P.T. Intan Wijaya, based in Banjarmasin, South Kalimantan, on an FOB (Free On Board) basis. They claimed they no longer owned the chemical as soon as it left their factory. But Intan Wijaya, the buyer, claimed that while the Formalin was still in the barge, they had not yet received it, so it was still the responsibility of either the barge owner or the manufacturer. Some of the confusion arose because Intan Wijaya had sent a 600 ton ship from Banjarmasin to pick up the Formalin. But when the ship was found to be too big to dock at the chemical factory pier, a tanker barge was hired at the last minute to transfer the Formalin from the factory to the ship in a shuttle operation, with the buyer presumably paying for the barge.

A tangle of legal knots was revealed by city, provincial, and national government lawyers trying to figure out who could be ordered to salvage the barge. A possible breakthrough came with Indonesia's new trade and transport regulations dictating that manufacturers of dangerous chemicals are responsible for the safety of their products until they reach the point of distribution. However, the Formalin purchased by Intan Wijaya would not be distributed, but used in further manufacturing in Banjarmasin.

Looking into the issue of licenses and permits, the city found that the manufacturers had no permit to sell Formalin in the first place. The factory was supposed to be producing Formalin only as a feedstock for its urea-formaldehyde glue production, but not selling Formalin to off-site users.

The barge owner's side also had some permit problems. The P.T. Sinar Pulau Laut barge was only licensed to carry water or diesel fuel in bulk, not other dangerous chemicals. Indonesian transportation regulations specify that chemicals such as Formalin must be transported only in small, sealed containers, and may not be shipped in bulk.

New environmental impact analysis regulations in Indonesia are meant to alert regional governments to activities, especially by large, new factories, that may pose environmental and health hazards. Indeed, staff of the provincial environmental office found that an environmental impact analysis had been filed for the Formalin/glue factory when it was being built in 1983. But when the factory was sold by its original owners in 1985, before it began operation, no new analysis was required from the new owners. Some of the old permits for the factory remained in force or were renewed without noting changes in operational plans, which included selling Formalin as a separate product, rather than just using it as an on-site feedstock.

I asked the head of the provincial environmental bureau, Badaruddin Hamidy, whether there was anything, in all of the permits that companies need to operate in Samarinda, that could be used to compel someone to take responsibility for the accident and raising the barge. (My understanding of the uses of the enormous number of business permits in Indonesia is that although their major role may be in lining the coffers of the issuing agencies, and possibly the pockets of the officials responsible for issuing them, they can also be used to compel business operators to do all kinds of things they might not want to do.) Badaruddin answered that although a number of permits may be violated in a case like the Formlin barge sinking, permit enforcement is difficult. He was candid in stating that East Kalimantan is lax in enforcing regulations in general, and that environmentally oriented rules, in particular, carry few penalties or effective sanctions for even flagrant, deliberate violations. Enforcement, if it can be called that, is done by persuasion and negotiation, in the Indonesian traditional of consultation and consensus. The government hesitates to confront industries outright. Even the most recent environmental regulation relating to the resolution of environmental disputes recommends mediation rather than litigation, but it fails to specify appropriate mediators, or provide guidelines on how long negotiations should go on before stronger measures are used. According to Badaruddin, nonconfrontational, nonantagonistic approaches are the only means of inducing compliance with many environmental rules by Indonesia's largest industries, which are state enterprises. Any other means would be quickly overruled from "above," from Jakarta, or from ministries with more power than the Ministry of Population and Environment, which has little clout against the priorities of the industrial and mining enterprises that are generating Indonesia's desperately-needed foreign exchange.

In the case of the sunken Formalin, however, it was largely the leverage of the combined number of disregarded permits on the part of all the companies involved that allowed the government to apply pressure on all parties to figure out how to get the barge off the bottom of the river. While the penalties for violating

any one of the regulations or permits that were flaunted in this case are minimal, the threat that business in general for the companies involved would be made difficult in East Kalimantan apparently provided an incentive for the parties to negotiate among themselves. (None of them are state enterprises.)

At the beginning of September, three months after it sank, the Formalin barge remains at the bottom of the Mahakam. But word is out from City Hall and the governor's environmental bureau that the manufacturer, the buyer, and the barge owner have finally agreed on a division of costs to salvage the barge. The terms of the agreement appear to be secret, and no one has a clear idea when the barge raising will take place.

As far as most of the government offices that got involved in the Formalin incident are concerned, the case is closed, at least for the time being. Last week, I finally received a call back from the manager of the Formalin/glue factory, after my numerous attempts to ask what is going on. Yes, I learned, the barge will be lifted, and the Formalin, hopefully still inside, would be retrieved. The company still accepts no responsibility for the accident in principle, but just wants to get the matter out of the way at last. So they were willing to pay to clear the problem up. With insurance? No comment. When? Soon...

When I last met with Razak, the planner, and Abdurrachman, the city's secretary, both appeared happy, even proud, of how Samarinda had handled this near-disaster. They considered it a crucial bit of practice, a dress rehearsal, alerting everyone involved that the next accident might have more serious consequences. The fact that they had resolved a tricky issue with very little help from Jakarta, despite initial requests for assistance, is a feather in the cap for the city. Both were delighted that Samarinda was to be made an example for more locally-based environmental management in Indonesia. The city's mayor, who had been abroad at a Canadian-sponsored environmental management workshop during most of June, when the barge sank, brought a gift back from the central government. Starting next year, Samarinda will be one of only two sub-provincial governments in the country to be authorized to have its own environmental bureau, charged with carrying out a full range of national environmental policies. Whose ideas and priorities these policies reflect remains to be seen.

Sincerely,



Received in Hanover 10/11/88