



Rapid Biophysical Socio-economic and Health Impact Assessment of Oil Spill Incident in Pola and Calapan, Oriental Mindoro, Philippines

Socio-Economic, Health, and Governance Report

I. Introduction

Oil spills, or the accidental release of petroleum into a large body of water, cause devastating effects on biodiversity and communities. The MT Princess Empress carrying 900,000 liters of industrial fuel oil that capsized in the waters of Naujan, Oriental Mindoro on February 28 left a massive oil spill that has since negatively impacted marine waters and more than 190,000 individuals across the regions CALABARZON, MIMAROPA, and Western Visayas as of April 21.¹ Most of the reported impacts were from the municipalities within Oriental Mindoro located in the MIMAROPA region. Two of the most affected towns were Pola and Calapan.

Pola is a third-income class municipality in the eastern portion of the province of Oriental Mindoro and south of Naujan. It is about 25 kilometers away from the site of the oil spill incident in Naujan and was one of the first communities to be affected by the spill. Oil was reportedly sighted here as early as March 2 - two days after the incident occurred. It was placed in a state of calamity and has suspended fishing and swimming activities since then.²

Calapan City is a third-class component city and the capital of Oriental Mindoro. It also houses the country's largest port passenger terminal building in the country. The city's land use is described as 85 percent agricultural, six percent commercial, five percent residential, and four percent mangrove and tourist sites. It imposed an initial fishing ban on more than a third of its barangays on March 4 but was lifted on March 17, based on localized water quality results. However, BFAR opposed the decision and reinstated the ban on March 24.^{3 4}

Brigada Kalikasan and Southern Tagalog Serve the People Corps (STPC) conducted a rapid impact assessment of the oil spill with respect to the environment, socio-economic status, and health of residents in Calapan and Pola on April 1-3. The findings in this assessment shall contribute to the overall impact assessment of the oil spill, the enhancement of response efforts, and the demand for accountability and justice from the corporations and agencies responsible for the oil spill.

¹ <https://newsinfo.inquirer.net/1759326/fwd-193436-people-now-affected-by-oriental-mindoro-oil-spill-ndrrmc>

² <https://www.cnnphilippines.com/regional/2023/3/3/Pola-Oriental-Mindoro-town-state-of-calamity-oil-spill-.html>

³ <https://www.youtube.com/watch?v=WqQDU-9kEHc>

⁴ https://newsinfo.inquirer.net/1747858/23-calapan-villages-placed-under-state-of-calamity?utm_medium=Social&utm_source=Facebook&fbclid=IwAR2JSAbZfNk_NkMG4kYD5neRWVy-2-EiL9naLwBS3VlirkZV42We4oO08sc#Echobox=1679696998

II. Methodology

This assessment was done when Pola had been under a state of calamity and had a fishing and swimming ban for over four weeks. Calapan, on the other hand, had a fishing ban for cumulatively almost a month and was under a state of calamity for more than a week. Four coastal barangays (Navotas, Maidlang, Silonay, and Lazareto) in Calapan and two (Misong and Tagumpay) in Pola were determined as assessment sites.

This research was conducted using a mixed-methods approach with focus group discussions (FGDs), key informant interviews (KIIs), and surveys as data collection tools. KII followed a semi-structured process that included barangay captains and leaders of local groups, sectors, and organizations as participants. A group of 10-15 people from different sectoral groups (women, indigenous people, youth, fisherfolk) were gathered for FGDs, and these were moderated by two or three study members. For the survey, a convenience-based sampling method identified household heads or if unavailable, legal-aged representatives, as survey respondents.

Due to limited time and logistical barriers, quantitative analysis only derived descriptive statistics while thematic analysis was employed for the qualitative aspect of this study.

III. Socio-economic impacts

Lack of income and alternative livelihood

Pola

A total of 170 responses were gathered in Pola. 83 were from Barangay Misong while 87 came from Barangay Tagumpay. About 65% of the 589 families in the two barangays rely on fishing as their primary livelihood.

Primarily due to the fishing and swimming ban, 87% of the respondents said they do not earn enough to cover their family's needs. Additionally, 39% of respondents reported having zero income. According to a barangay official, around 70% of barangay Tagumpay - including those living relatively far from the shore - rely on the sea for food and income. The fishing ban prohibited all kinds of fishing including "paninihi" or picking up seashells and other benthic marine creatures. The swimming ban, on the other hand, stopped all tourism activities. Aside from the tourist establishments, fisherfolk that used to offer transportation to tourists also lost a huge part of their income source.

"Around this time (Holy Week), there used to be 2,000 tourists crossing our barangay (Tagumpay) every day."

-Barangay official, Barangay Tagumpay, April 3, 2023

Some fisherfolk and their families were kept afloat by alternative sources of income such as cash-for-work (CFW) programs and copra farming. There were CFW programs by the government and by the company Harbor Star Shipping Services Inc. that provided around PHP 355 per worker every day. Coconut (kopra) farming, which was the most common income source since the oil spill happened, only produced around PHP 3,000 every two to three months which was equivalent

to about PHP 30 income per day. Despite the alternatives, roughly an average of PHP 7,500 per month per family was lost.

In the focus group discussions, the residents also stated that there were “no concrete alternative livelihoods” and that they were only relying on relief goods for their expenses and food. This could be indicative that there were insufficient alternative livelihoods provided. The indigenous women in barangay Misong voiced how their livelihoods after the oil spill only consisted of extra work or planting bananas if they could borrow land from someone. The thought of finding alternative livelihoods in the city was not a practical choice for the fisherfolk as they do not have enough financial capacity to do so. Furthermore, the fishermen were also wary that they will not be able to find jobs in urban areas due to their educational background.

“Kung luluwas ka ng Maynila, hindi mo naman alam kung ano ang kahinatnan mo dun...Hindi naman ako nakapag-tapos sa pag-aaral, sino naman ang tatanggap sa akin?”

- Fisherman, Barangay Misong, FGD

The oil spill stopped most livelihoods in affected coastal communities - not only on fisherfolk but also on retail and fish vendors, drivers for public transport, and many others. The high percentage of respondents who reported not earning enough to cover their family's needs highlights the urgent need for immediate assistance and support to alleviate the economic burden on affected households.

“Mas malala pa ang epekto sa amin nito (fishing and swimming ban because of oil spill) kaysa COVID.”

-Barangay official, Barangay Tagumpay, April 3, 2023

Calapan

The survey garnered a total of 176 responses across coastal barangays Navotas, Maidlang, Silonay, and Lazareto. Results show adverse effects on the socioeconomic conditions, particularly in the local fishing industry. The majority of the population in these barangays, estimated to be around 70 to 90%, were heavily reliant on fishing for their sustenance and livelihood.

The fishing ban along with the people's reluctance to consume potentially contaminated fish had led to a dramatic decrease in fish production and prices. Prior to the disaster, the top harvests include bangus, tulingan, suso, pusit, and lumahan which range from PHP 150 to 200, and higher value fishes (>PHP 300) like maya-maya, tanigue, and muslo. In a good season, households earned an average of P4,000 per week, but narratives on the ground said this could reach as high as PHP 30,000.

According to survey respondents, fish prices have decreased by half from P100-P300 per kilo to an average of P50-P150, even dropping as low as P3 per kilo of Dumpilas in Barangay Lazareto. In Barangay Navotas, the oil spill has also forced the removal of previously existing fish pens containing bangus and sugpo. About 27% of the respondents reported having zero income after

the oil spill incident while 93% said do not earn enough for their families' needs. Some residents complained that there were already financial problems prior to the oil spill, and this was only made worse.

“Pinansyal ang pangunahing problema, na mas lalong pinalala matapos mangyari ang oil spill.”

- FGD participants from Lazareto, Calapan

Families get buried with debt as microfinance centers continue to collect loan payments on a daily or weekly basis. At the time of data collection, the 23 coastal barangays of Calapan City were in the collective process of forwarding a resolution for the City government to temporarily halt the loan collection in the midst of an economic crisis.

Some fisherfolk have been compelled to venture outside their designated fishing zones, seeking alternative fishing locations in Batangas and overseas aboard fishing boats. Despite the imposed fishing ban, authorities still permit fishing activities due to the lack of sufficient disaster response and alternative livelihoods. Other fishers risk punishment amid constant surveillance of registered boats by uniformed personnel. Low profits of fisherfolk compounded by the rising cost of gasoline resulted in some turning to produce bagoong to trade with farmers for rice.

Asset ownership granted several households some time as they looked for alternative occupations, but the selling or renting of boats and gear can only support the family's daily needs in the short run. The limited construction jobs prompted a rotational referral system within the community where household heads take turns in getting opportunities. Some individuals tapped into their respective social networks, relying instead on remittances and donations from families, friends, and colleagues.

Other forms of livelihoods were also severely affected as the local economy is intertwined with the local fishing activities. Fish vendors, tricycle drivers transporting fish catch, sari-sari store owners, and gasoline vendors deal with dwindling profits as the community generally has less purchasing power than before. Some livelihoods across all barangays were even forced to stop such as the production of rugs, dishwashing liquids, tocino, sardines, and smoked fish, as well as meat processing, baking, and online labeling. Some family members of the respondents were forced to move out and look for livelihood opportunities outside Mindoro.

Income from tourism also disappeared. As shared by one barangay official, visitors stopped coming to the mangrove eco-park in Silonay, despite the park remaining unaffected by the oil spill. Moreover, kayaking services for tourists, which before cost 200 per ride, had to stop.

Community traditions related to fishing such as the collective hauling of fishing nets in the morning and fisherfolk sharing their fish catch with their neighbors have stopped. An apparent public distrust in policy was also observed as the imposition of the fishing ban for the safety of consumers stands in conflict with the communities' livelihood and the lack of alternative options, alongside what they deemed slow, insufficient disaster response and a gross lack of opportunities and support for all.

Threat to education

Residents have voiced concerns about how to finance the education of their children. The alternative income ranging from 350 to 500 php was only enough for basic needs like food and electricity.

Pola

Some respondents from Pola said that many children had no choice but to temporarily stop schooling due to a lack of funds. This was particularly true for households whose income primarily depends on fishing, as they were forced to rely solely on limited food aid or cash for work programs. There were also reports that teachers at times shoulder some expenses needed by the students to continue their education. With no safety net for vital expenses such as food in times of emergency, education became a secondary priority for many families.

“May ayuda na pagkain, wala namang pangbaon ang mga bata.”

- Fisherman, Barangay Misong, FGD

Tadyawan IPs in Barangay Misong also pointed out how their children who were in senior high do not have enough pocket money to travel, eat, and also accomplish their school requirements due to the lack of income from not being able to fish. A barangay official in Tagumpay also expressed the same issues—as he stated, the financial aid given to the residents was not enough to sustain the educational needs of the children in the area.

“Ay ngayon po ay pumapasok sila ng walang baon. Dahil ano naman pong mabigay namin?
Wala na kaming hanapbuhay.”

- Tadyawan, Barangay Misong, FGD

Calapan

There were similar sentiments from parents in Calapan City, where there were struggles in financially supporting their children's education. Some have reduced the amount they are giving (e.g., from P150 to P100) while some could not give any allowance at all. Students studying in schools outside Calapan had to stop attending classes because they could not afford to spend PHP 100-P200 a day on transportation costs.

This compromised conditional cash transfer (4Ps) beneficiaries as school attendance was required to receive cash. Youth respondents were not optimistic about any form of assistance or response from the Department of Education (DepEd) as the institution “could not even provide the students with the essential books for their education.”

“Hindi naman apektado ang eskwelahan, hindi lang mabigyan ng pamasaha mga estudyante.”

- Silonay resident, FGD

Universities and high schools in Calapan were situated far from certain barangays. According to some residents, high school students usually relied on tricycles and receive a daily allowance of P40 while college students range from P100 to P200 to be able to commute to and from school. As reported, some students in Calapan are forced to go to school on empty stomachs, while some skip school altogether.

“Minsan di na nakakapasok kasi walang pambaon.”

-Silonay resident, FGD

Prior to the oil spill, students from Maidlang would help support themselves, dedicating their weekends to work to earn for their own education. Boys aged 15 and older participate in fishing trips and assist with various fishing tasks, such as pulling nets, while girls sell the fish. However, they could not do these anymore because of the fishing ban.

Problems with water source

Pola

Freshwater availability was also a concern for the residents. Due to the ban on using their nearby water sources, they were forced to either fetch from a significantly farther source or wait for water rations.

“Ang pinagkukunan namin ng tubig ay malapit sa tabing dagat. Bawal maligo, bawal maglaba...Yung dito po, galing na po ang tubig nila sa bundok. May gripo na po. Eh yung sa amin, wala pa.”

Fisherman, Barangay Misong, FGD

Calapan

The city government tested water pumps for oil spill intrusion in freshwater sources. Until the results meet standard parameters, the residents were advised to source their drinking water from refilling stations (P30 per tub) and water for everyday use from city fire trucks. The additional cost places further stress on a family's thinning resources. There were also reports that the rationed water was unclean and was only good enough for watering plants and not for bathing.

Threats to the economy, food security, and poverty rate

Agriculture, forestry, and fishing (AFF) comprise a huge part of the economy in Oriental Mindoro and MIMAROPA. In 2021, the AFF share in the MIMAROPA region's gross regional domestic product increased to 19.6 percent. In Oriental Mindoro, the bulk fisheries production was from municipal fisheries, with top harvests milkfish, galunggong, tulingan, tamban, and gulyasan (Annex A). According to BFAR, the fishing ban causes an estimated national loss of PHP 5 million per day⁵ which accumulated to PHP 400 million on April 15.⁶ Considering the economic

⁵<https://www.bworldonline.com/the-nation/2023/03/20/511712/philippines-losing-p5m-daily-on-oil-spill-fish-ban/>

⁶<https://www.philstar.com/nation/2023/04/15/2259082/mindoro-oil-spill-income-loss-hits-p400-million-due-fishing-ban>

contribution of AFF, this suspension of fishing poses a significant threat to the economy and food security of the communities and potentially of the whole region.

Nine out of ten respondents said that their income was not enough for their families' sustenance while one out of three had no earnings at all. The occurrence of the oil spill and the subsequent banning of fishing and water-related activities in affected coastal communities for an indefinite period may reverse any poverty alleviation in the province and compound the existing economic woes of fishing households (Annex B). Quick mitigation strategies are urgent and necessary as primary livelihoods continue to be put on hold.

IV. Health impacts

The predominant oil pollutant, industrial field oil (IFO)⁷ is a type of residual fuel oil that is a mixture of high-molecular-weight compounds that are “difficult to characterize in detail.”⁸ Included in this mixture are aromatics (e.g., benzene) and heavy metals (e.g., lead, mercury) which can cause both short-term and long-term health effects (Table 1) when inhaled, ingested, or made direct skin contact. As of March 25, there have been 206 reported oil spill-related illnesses in Oriental Mindoro.

Table 1. Potential short-term and long-term health effects of exposure to IFO^{9 10 11}

Short-term	Long-term
<ul style="list-style-type: none"> - Neurological effects (headache, dizziness, etc.) - Irritations (eye, skin) - Respiratory problems (coughs, difficulty breathing, etc.) - Traumatic symptoms (pain) - Depression, anxiety, post-traumatic stress 	<ul style="list-style-type: none"> - Low blood count (hemoglobin, platelets) - Chronic rhinitis and airway issues - Liver, lung, heart, and reproductive problems - Stunted growth (especially children) - Decreased immunity - Cancer

⁷<https://headtopics.com/ph/french-experts-oil-spill-samples-same-as-black-oil-from-san-miguel-s-tank-in-bataan-38103242>

⁸<https://www.ncbi.nlm.nih.gov/books/NBK531265/#:~:text=Fuel%20oils%20are%20complex%20and,rang e%20of%20kerosene%20%5B%5D>.

⁹ <https://amazonfrontlines.org/chronicles/health-oil/>

¹⁰ <https://www.webmd.com/cancer/health-effects-oil-spills>

¹¹ <https://www.environmentalpollutioncenters.org/oil-spill/humans/>

Presence of oil spill-related short-term symptoms

Pola

As of March 20, twenty days into the oil spill, there were 188 reported oil spill-related illnesses in Pola. Thirteen of these were from Barangay Tagumpay while 82 came from Barangay Misong.

In this assessment, 88% of the respondents reported that they were exposed, mostly through inhalation (88%) and direct skin contact (41%). 42% reported having experienced oil spill-related symptoms, mostly headache (42%) cough (39%), and dizziness (28%).

“Malakas ang amoy nung langis, abot hanggang bundok. May mga nahilo at nanikip ang dibdib...”

-Tadyawan woman, FGD

There was sufficient personal protective equipment (PPE) provided to those who clean oil from the shore every morning. However, some of them still work in the afternoon whenever they spot oil slicks approaching the coast but without enough PPE as during normal cleaning hours (because they have already disposed of their PPE in the morning). Incidents like this increase risk of exposure to the oil and consequently the occurrence of its negative health effects. The oil cleaners contracted by Harbor Star Shipping Services Inc. were also given health insurance effective for the whole duration of their contract. While this was better than none at all, it would still be insufficient as the health effects of oil exposure to the contracted cleaners may manifest years after. In one study, oil spill workers were found to have breathing, blood, liver, lung, and heart problems seven years after their work.¹²

Interviews and discussions with the residents also revealed that several school-age children in Barangay Tagumpay, where the elementary school is located beside the coast, experienced symptoms after inhaling the oil. This caused some children to be absent from classes on some days. The growth and development of children can be stunted due to exposure to oil such as this. It will be imperative to keep the children from getting exposed as the oil still arrives at their coasts from time to time.

Calapan

Out of the responses in Calapan, 55% reported having been exposed to the oil pollutant, mostly due to inhalation followed by direct skin contact. Only a few reported oil spill-related symptoms, most of which were headaches followed by dizziness. There were a few cases of vomiting mostly in the elderly and children.

Higher exposure incidence in Pola than in Calapan could be due to the higher duration and intensity of oil slick presence in the Pola. This implies that as long as there is a possible presence of oil on the shores, the oil spill will remain a health hazard.

¹² <https://www.webmd.com/cancer/health-effects-oil-spills>

Psychological distress

Pola

Out of all respondents, 25% were potentially experiencing clinical depression based on answers to the Patient Health Questionnaire 2,¹³ 25% were found to be in need of further evaluation for possible clinical depression. It was observed during data collection that most of these people were also those who had zero income. This condition has been likely caused by problems in finance, food, and education of their children.

Fisherfolk in Misong also reported that several officials have already tested the affected water and air in the area. However, more than two weeks after the testing, they did not receive any reports back about the current condition of the area and if it is possible for them to continue with their past livelihoods. Such uncertainty may have caused anxiety within the community, specifically worries about how to continue living within the affected areas without their usual means of livelihood. Aside from that, the residents in Misong remain anxious about their health – even if they were warned about the effects of the oil spill, there were still not given clear and transparent reports about the contamination.

“Kasi, advance din yung technology tayo ngayon sa Pilipinas eh, diba? Kailangan, dapat, sa tagal na po na dumikit yung, isang buwan na po yan. Kasi po, inexamine po isang dagat, hangin, ang alam ko po matagal na ang twenty-four hours dahil advance technology na tayo. Bakit hanggang ngayon po, wala pong nalalabas na balita na naexamine ang hangin atsaka ang dagat? Pano naman po ang magdaragat?”

- Fisherman, Barangay Misong, FGD

Calapan

Residents in Navotas reported that despite not having physical ailments due to the oil spill, there were frequent feelings of anxiety. Some were concerned with prolonged exposure to the oil spill and are worried that they have to relocate to a higher, unaffected area to avoid symptoms observed present in other barangays such as asthma, headaches, vomiting, and coughs. They were also concerned with the conditions of the elderly in the long term.

There were statements that show the emotional and psychological impact of the situation on both individuals and community leaders. One barangay official has specifically reported struggling with feelings of losing motivation.

“Madalas nawawalan ng gana gumalaw pero hindi nawawalan ng pag-asa.”

- Barangay official, Navotas, KII

On the other hand, one barangay leader expressed feelings of frustration with the lack of support that their barangay and they themselves were getting.

¹³ <https://www.hiv.uw.edu/page/mental-health-screening/phq-2>

“Naiiyak na talaga ako dahil sobra na. Dapat may mga taong sumusuporta sa’yo papunta sa solusyon, minsan may humihila pa sa’yo pababa. Kung hindi ko titibayan ng loob, babagsak ako at pati ang komunidad na uma-asa sa akin.”

- Barangay official in Calapan

The lack of income was also causing mental distress to both fathers and mothers, as they had families to sustain.

“Ang mga mangingisda, pangingisda lang ang iniisip; ang mga kananayan lahat iniisip kung saan kukuha ng baon ang mga anak, ano ulam, lahat.”

- Navotas resident, FGD

Apparent prioritization on sustenance over health

Only a one-time provision of vitamins and medicine in Barangay Tagumpay and a medical mission in Barangay Misong were noted. The lack of financial resources of the people might have been causing them to deprioritize their health over “more essential” needs such as food. As such, more medical interventions might be needed to check for pre-existing conditions and incidence of new illnesses especially in children and the elderly.

V. Governance

Institutional response timeline

This section traces the timeline of the oil spill and the corresponding responses of national and local governments with a particular focus on welfare distribution.

Numerous interventions (Annex C) have been made on the national level. One of the earliest was DSWD’s cash-for-work program launched on March 4 to complement the clean-up operations of the PCG. The program is budgeted P84.4 million for a target of 14,000 participants which later on included oil spill boom workers. They will be paid P355 for 15 days until the end of the program in May (Pasion, 2023). The money was reportedly distributed through city/municipal social welfare and development officers (C/MSWDO) however, communities state that compensation has not reached them yet despite completing more than three weeks of work.

DA-BFAR also committed an initial allotment of PHP 4M for post-harvest training and equipment. This covered ten (10) units of smokehouses for fish processing through fisherfolk associations and cooperatives (BFAR, 2023). Another intervention would come from DOLE, TESDA, and DOT’s TUPAD Training Cum-Production. TUPAD or Tulong Panghanapbuhay sa Ating Disadvantaged/Displaced Workers is a community-based package of assistance that provides emergency employment for displaced workers, underemployed and seasonal workers, for a minimum of 10 days but not exceeding 30 days.

Types of work included in the program are social community projects (repair and maintenance of public facilities and infrastructure), economic community projects (repair and maintenance of farm-to-market roads, markets, ports), and agro-forestry community projects (tree planting, seedling preparation, reforestation). Details of TUPAD however were not divulged in the LGU’s

press release (City of Calapan, 2023).

One, if not the most, critical discussion was on claims compensation. On March 24, the provincial government of Oriental Mindoro rolled out its claims caravan which covers four types of damages: (a) coastal clean-up and preventive measures; (b) economic loss of those in fisheries and marine culture; (c) economic loss in tourism and related businesses; and (d) property damages (Dolor, 2023). This one-time claim only amounts to a maximum of P15,000 per individual with an addition of a waiver not to sue according to barangay officials. However, these provisions were not explicitly detailed in the process flow posted by the provincial government. While they also advocated for one province, one claim, some affected LGUs decided not to join.

Another claim fund would reportedly come from the International Oil Pollution Compensation (IOPC). Both individuals and governments can claim based on the following categories: (a) economic losses in the fisheries, marine farming, and fish processing and trading sectors, (b) property damage, (c) economic losses in the tourism sector, (d) costs of clean-up operations at sea and onshore. A claims office and collection points have been set up in Calapan City for local coordination and communication (IOPC, 2023). As this is a recent development, evidence on this has not been captured during the field visit.

These national commitments have been slow to trickle down during implementation, and most of these have not been in effect in the assessed sites at the time of data collection (i.e. TUPAD, IOPC claims, cash for work for spill booms). Narratives on the ground paint an inequitable and inconsistent provision of relief and compensation. Further, the interventions proposed would only run in the short-term with cash for work ending this May, but the oil spill will continue to affect coastal communities beyond that month. As the fishing ban remains in place, the national and local governments would have to find more sustainable solutions to mitigate the socioeconomic effects of the oil spill on the communities.

The legal process of claiming also neglects to consider the role of the people. Important conditions were not included in the fine print nor are they communicated to the public. Likewise, 10-page, technical claim forms were not accessible to ordinary fisherfolk with primary education as his/her highest attainment. Legal assistance should be provided to avoid the inaccuracy of impact estimation to livelihood loss. Hence, the government should uphold the people's right to participate in a legal process that is transparent, accessible, and just.

Local Disaster Risk Reduction and Management Fund

Republic Act No. 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010 establishes a local disaster risk reduction and management fund (LDRRMF) as a specific fund source in cases of disasters and calamities. LDRRMF comes from five percent of the estimated revenue from regular sources (and internal revenue allotment) during calamities, and it is divided into mitigation fund (MF) and quick response fund (QRF).

MF takes up 70 percent of LDRRMF due to its pre-programmed nature. It should reflect activities in the annual investment plan budgeted beforehand. Any capacity building, equipment, or capital

outlay could fall under this category. On the other hand, the 30 percent QRF is only released during a state of calamity. This should cover immediate assistance, relief, and response after disasters. Any unexpended QRF will revert to the special trust fund for a maximum of five years unless disaster relief and response call for its utilization.

In the following table, Calapan City's LDRRMF is higher than the third-income class municipality of Pola given their larger revenue base. While appropriations have increased for both LGUs in recent years, it also becomes apparent that utilization never fully expends the budget. This observation has been uniformly observed across several LGUs (Domingo and Manejar, 2021).

Table 5. LDRRMF (in PHP million) of Pola and Calapan, 2018-2020

POLA				
Year	Type	MF	QRF	LDRRMF
2018	Appropriation	1.65	3.85	5.51
	Utilization	1.65	3.39	5.04
2019	Appropriation	1.81	4.23	6.04
	Utilization	1.81	2.85	4.66
2020	Appropriation	2.00	4.67	6.68
	Utilization	1.94	2.94	4.87
CALAPAN				
2018	Appropriation	11.08	26.07	37.14
	Utilization	0.00	20.86	20.86
2019	Appropriation	13.18	30.75	43.92
	Utilization	0.00	25.23	25.23
2020	Appropriation	13.88	38.50	52.38
	Utilization	13.61	20.66	34.27

Source: DOF-BLGF, various years

Both LGUs have managed not to tap at least 20 percent of their LDRRMF which may now be in the process of reverting to either the special trust fund or the general fund. This leaves the local governments ample resources to mobilize alternative resources to supply relief to affected communities at the very least or to provide sustainable alternative livelihoods to displaced fishers at the most. Nonetheless, officials remain hesitant to tap the pool due to several factors: (a) fear of disallowance from DBM and/or COA; (b) oil spill not defined as a *disaster*; and (c) less funds for future calamities.

At the hearing of the Committee on Environment, Natural Resources, and Climate Change on March 14, the OCD reported that the National DRRM Council is reviewing Memorandum Circular 45 s. 2017 for the release of calamity funds. The revised guidelines, in consideration of the oil spill's nature, are expected to be released by the end of April (Senate, 2023).

The key agencies involved in this aspect should clarify the gray areas for oil spills and disasters. This could help LGUs in releasing their QRF and trust fund that could facilitate immediate relief and response. In the long run, the study encourages a review of RA 10121 and the National DRRM Plan to expound on man-made disasters, including oil spills.

Table 6. Unutilized LDRRMF in Pola and Calapan, in PHP millions

Year	Pola	% share	Calapan	% share
2018	0.47	8%	16.29	44%
2019	1.38	23%	18.69	43%
2020	1.80	27%	18.10	35%

Source: DOF-BLGF, various years

Need for sufficient and quick relief

Almost all (98%) respondents in Pola said they were able to receive relief of any form. However, 82% of them said that all they received were insufficient for their family's needs. Mostly citing the need to support their children's education, 95% of the respondents expressed the need for financial assistance while 59% said they needed food. Other needed support included water, medical assistance (e.g., medicine, check-ups), work (so they can earn money), and supplies for hygiene and infants/toddlers (e.g., diapers).

In Calapan, only 58% of the respondents were able to receive any form of aid. Notably, residents of Barangay Lazareto have yet to receive help of any kind. 98% of those who received aid said that what they received so far was insufficient. Based on the KIIs, most of the barangays in Calapan see the relief efforts slow and insufficient.

“Kagulo ang mga tao nang 2 linggo dahil walang pang gastos. Walang pamasaha ang mga batang estudyante. Wala man lang ayuda, reklamo ng mga tao. Sinasabihan na lang nila na mag diskarte muna, maghanapbuhay sa taas (na bahagi ng Navotas), mag panday, mag labor. Wag masyadong umasa at mabagal ang gobyerno.”

-Barangay Official in Calapan, April 3, 2023

Based on the responses, there have been weekly food packs from the Department of Social Welfare and Development in both Pola and Calapan (except for Barangay Lazareto). Some residents in both towns were also able to receive medicines and face masks once. There was also financial support given through credit in Calapan and, spontaneously, an average of PHP 2,000 per family in Pola by private entities and government officials. There was more aid given there than in Calapan, possibly due to the longer and apparently worse impact in Pola.

“Nalulungkot talaga ako. Araw-araw may bumababa [na ayuda] sa Pola, dito isang araw lang at hindi pa nabigyan ang lahat.”

-Barangay Official in Calapan, April 3, 2023

Despite several opportunities for alternative livelihood and relief, only a few were observed to be already in effect at the time of assessment. There were frustrations with the bureaucratic processes and requirements in order to claim some relief. There were also reports of agreeing to “not file a case against the ship owner” as a conditionality to be able to financial aid.

In both towns, the most reported suggestion for alternative livelihood was farming and livestock raising (chickens or pigs), although the latter could go unsustainable as it requires animal food which might be unaffordable for some. There were also suggestions that PHP 350-500 per family every day will be enough for them to survive.

Accountability from responsible parties

As stated in the Republic Act 9483, also known as the Oil Pollution Act Compensation Act of 2007, “the owner of the ship shall be liable for any pollution damage caused by the ship.” While RA 9483 only limits accountability to the ship owner, it still implies that those who were at hand for oil spills must be held liable through just compensation.

Mixed opinions from the locals with regard to filing a case against the responsible agencies and private entities were observed. Most Calapan residents stood firm that those at fault must be held accountable while mixed opinions came from Pola residents - most remained "neutral" but willing to support if the opportunity to support a case comes while some "haven't thought about it yet" as they were focusing on looking for sustenance for their families. Only a few said that they don't want to push through with supporting filing a case against the ship owner. Nonetheless, some respondents thought that “calling out and going against the ship owner will result in not receiving aid.” This, combined with their desperation for relief and financial assistance, seemed to be a huge factor for some respondents not yet considering holding liable those who were at hand for the oil spill disaster.

The province of Oriental Mindoro and its municipalities also seemed to have conflicting sentiments on filing a case against the parties involved in the oil spill. As of writing, there were no concrete actions yet to pursue full accountability of the tanker and all responsible parties for the oil spill disaster despite the clear violation of the law. With this, the role of local government units becomes more important in order to push through with pushing to penalize those at fault - may it be the ship owner, government agencies, or even the charterer and cargo owners.

VI. Conclusions and recommendations

After a month of the oil spill, the economic capacity of the residents in Pola and Calapan has been severely diminished due to the fishing and swimming ban and the consequent halt of most industries and livelihood. This left almost all families with insufficient income for their sustenance which cascaded into lesser priority or capacity to cater to their health and the children's education. If this continues unabated, worse impacts can manifest in literacy, poverty, morbidity, and mortality rates on wider scales in all affected areas.

People's health remains under threat as long as the oil spill is ongoing. Depending on factors such as, but not limited to, the intensity of oil presence, people can be exposed and acquire short-term and long-term oil spill-related illnesses. Hence, necessary and appropriate health protocols must be maintained or put in place especially to protect the people especially oil spill cleaners and children.

Most of the available compensation and aid are yet to be fully implemented. These must be fast-tracked to respond to the urgent need of the affected for resources. The continuation of programs like these must also be ensured especially as most of the available cash-for-work and financial compensation are limited.

Food aid, despite the prompt provision, is insufficient. Financial aid is urgently needed for sustenance and education support. These can be addressed by increasing the weekly food rations or implementing a just financial support mechanism. Moratoriums on loan payments must also be implemented. Other specific supplies and assistance that are also needed include water, medicine, health check-up, and hygiene infant supplies. Needs assessment on communities can help determine the needed supplies or improvement in the quality thereof. Partnerships with other agencies and organizations can also be explored to buffer the needed relief.

The water and fish sample testing is not promptly communicated to the residents which causes anxiety and distrust. Routine and timely testing and sharing of results with the communities can be done in order to address this. Collaboration with different government agencies, educational institutions, and non-government organizations can also help in achieving this.

There are apparently available LDRRMF funds that are not yet utilized to provide relief. There might be a need to review the classification of oil spills as a disaster. Compensation for the affected residents appears to be burdensome which prevents some to receive it. Streamlining these processes or providing legal and technical assistance can ease and speed up the disbursement of these.

There are no well-known concrete steps yet to demand accountability and compensation from the parties responsible for the oil spill are being done despite a clear violation of RA 9483. The necessary steps can be spearheaded and taken by the towns together with the affected communities. The enhancement of RA 9483 must also be done in a manner that will penalize all involved parties in oil spill incidents.

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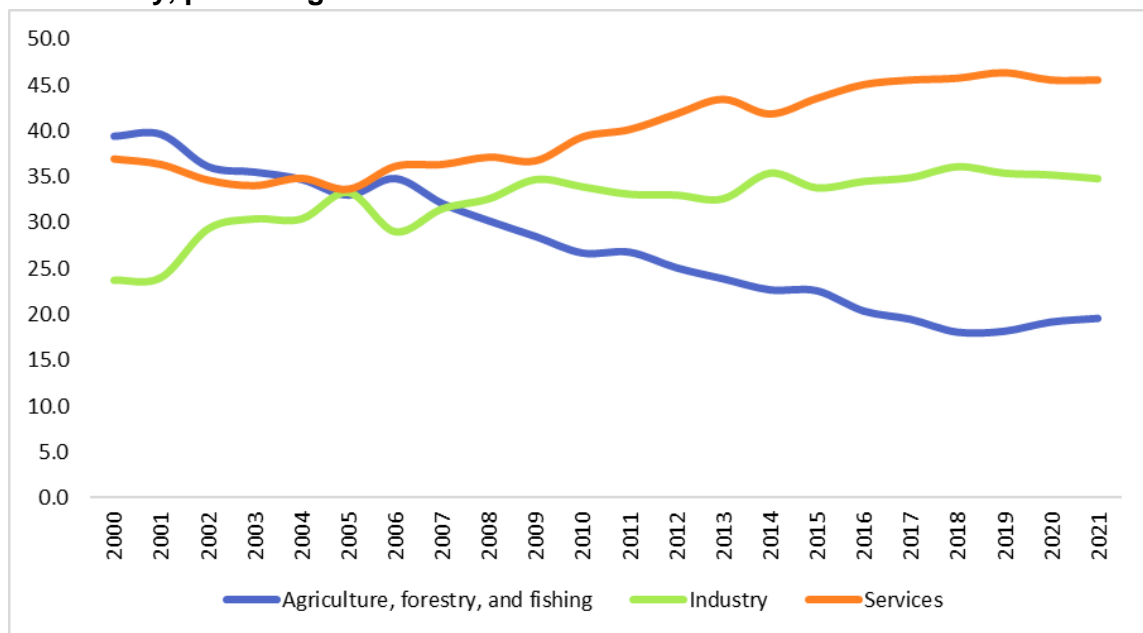
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ANNEX A Fishing industry statistics

Flanked by resource-dependent, marine resource-rich islands, the province's agriculture, forestry, and fishing (AFF) share in MIMAROPA's gross regional domestic product (GRDP) was highest in the early 2000s, industry and services managed to exceed the former's growth from 2005 onwards. Between 2020 and 2021 however, AFF managed to increase from 19.2 to 19.6 percent, indicating sectoral growth.

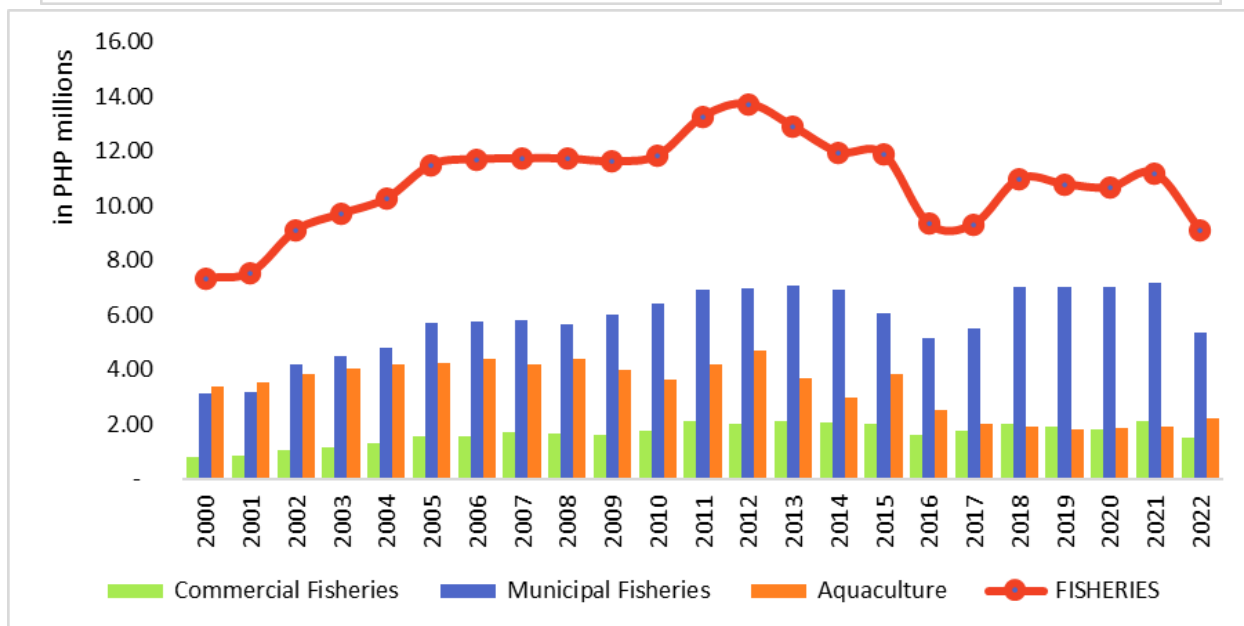
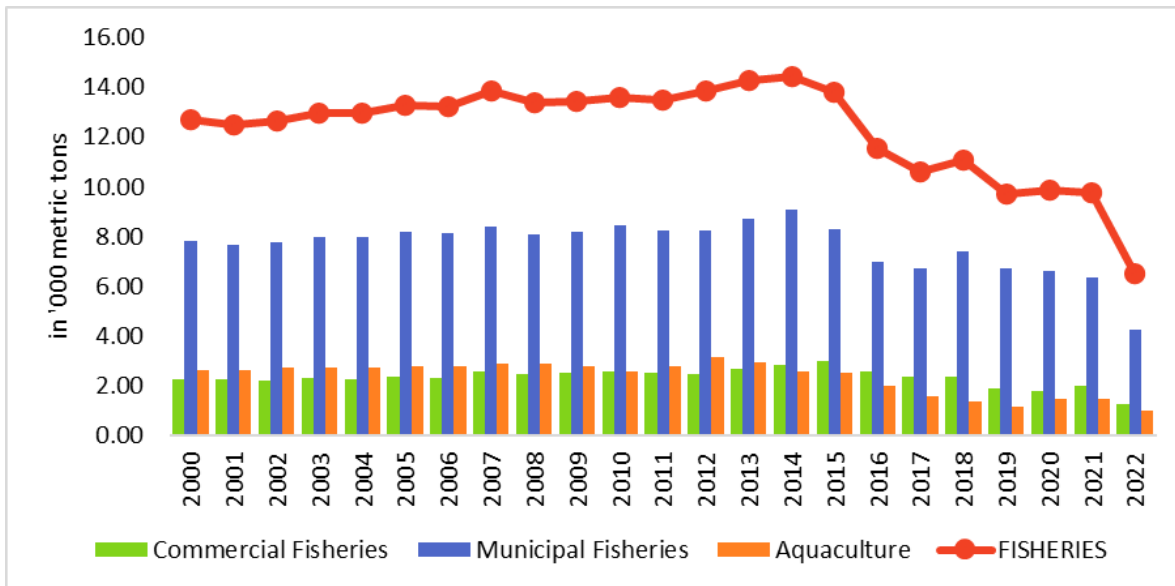
Municipal fisheries comprise the bulk of Oriental Mindoro's fisheries production. It is followed marginally by aquaculture which rivaled the value of the latter in the early 2000s but shrunk down to the share of commercial fisheries by 2014. The province's annual production dwindled over the years, recording only 6,500 metric tons and PHP 913,203.58 in 2022.

Figure 1. Gross regional domestic product of MIMAROPA at constant prices by industry, percentage share



Source: PSA, various years

Figure 2. Fisheries volume and value of production in Oriental Mindoro



Source: PSA, various years

The province’s top harvest in volume includes milkfish (11%), roundscad/galunggong (9.2%), frigate tuna/tulingan (9.0%), bali sardinella/tamban (6.2%), and skipjack/gulyasan (6.2%). The same species are also found within the top ten of highest valued species, but tiger prawn comes out with the biggest individual share of 15 percent and an annual average catch worth PHP 325,543.48 per year.

Table 1. Fisheries production value and volume by species in Oriental Mindoro, 2002-2022

Species	Production Value (in PHP '000,000)
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No.	Species	Sum (2002-2022)	% Share	Annual Average
1	Tiger prawn	3,580.98	15.3%	325.54
2	Milkfish	2,636.86	11.2%	239.71
3	Frigate tuna (Tulingan)	2,075.31	8.9%	188.66
4	Roundscad (Galunggong)	2,021.91	8.6%	183.81
5	Skipjack (Gulyasan)	1,460.52	6.2%	132.77
6	Tilapia	1,294.61	5.5%	117.69
7	Others (Marine Fisheries)	1,114.15	4.8%	101.29
8	Yellowfin tuna (Tambakol/Bariles)	1,097.59	4.7%	99.78
9	Indian mackerel (Alumahan)	999.33	4.3%	90.85
10	Threadfin bream (Bisugo)	756.68	3.2%	68.79
	<i>Others</i>	<i>6.41</i>	<i>27.3%</i>	

Fisheries production volume (in '000 metric tons)

No	All species	Sum (2002-2022)	% Share	Annual Average
1	Milkfish	28.77	11.1%	2.62
2	Roundscad (Galunggong)	23.65	9.2%	2.15
3	Frigate tuna (Tulingan)	23.20	9.0%	2.11
4	Others (Marine Fisheries)	17.01	6.6%	1.55
5	Bali sardinella (Tamban)	16.03	6.2%	1.46
6	Skipjack (Gulyasan)	15.93	6.2%	1.45
7	Tilapia	15.20	5.9%	1.38
8	Indian mackerel (Alumahan)	11.70	4.5%	1.06
9	Yellowfin tuna (Tambakol/Bariles)	11.51	4.5%	1.05
10	Anchovies (Dilis)	9.39	3.6%	0.85
	<i>Others</i>	<i>85.78</i>	<i>33.2%</i>	

Source: PSA, various years

Fishing gears

Most municipal fishing operators, particularly in marine waters, use hook and line as their fishing gear while inland fishers use fish trap/fish corral/baklad. Other gears ranked highest in usage are gill net, crab hook, harpoon/spear gun, scoop net or dip net, fishing light, long line, fish pot, and beach seine net.

Table 2. Fishing gears used by municipal fishing operators in Oriental Mindoro, 2012

No.	Fishing gear	Total	Marine	Inland
1	Hook and Line	223,269	199,712	23,557
2	Fish Trap/Fish Corral/Baklad	69,814	2,507	67,307
3	Gill net	18,478	9,273	9,205
4	Crab Hook	2,239	2,045	194
5	Harpoon/Spear Gun	2,106	758	1,348
6	Scoop Net or Dip Net	2,011	1,365	646
7	Fishing Light	1,460	1,102	358
8	Long Line	1,300	775	525
9	Fish Pot	1,272	575	697
10	Beach Seine Net	1,201	452	749

Source: PSA, 2012

Municipal fishers reportedly own 82.8 percent of their boats, most of which are mechanized (boat with engine and outrigger). A small number still use rafts for their operations. It is important to note that ownership of boats and gears are indicators of asset wealth. Fishers with assets are seen to have higher adaptive capacity and could quickly diversify in cases of short-term closures (Taylor et al, 2021).

Table 3. Boat ownership of municipal fishing operators, 2012

	Owned	% Share	Not Owned	% Share	Total
Boat with engine and outrigger	3677	82.8%	762	17.2%	4439
Boat with engine but without outrigger	475	10.7%	135	3.0%	610
Boat without engine but with outrigger	2221	50.0%	750	16.9%	2971
Boat without engine and outrigger	600	13.5%	242	5.5%	842
Raft	32	0.7%	12	0.3%	44

Source: PSA, 2012

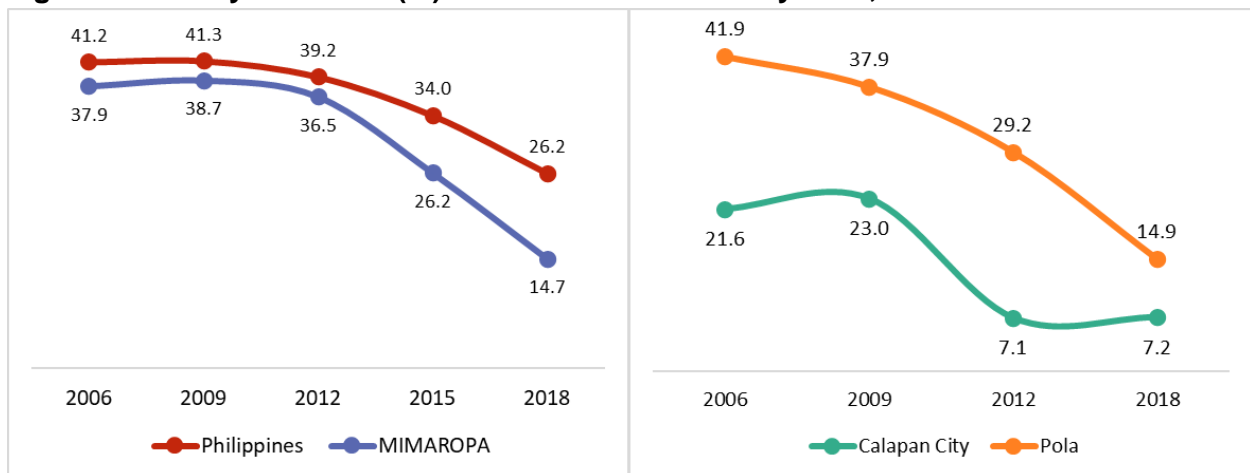
ANNEX B Poverty Incidence

Poverty incidence

The Philippine Statistics Authority's (PSA) reports fishermen as having the highest poverty incidence alongside farmers, and children from poor families throughout the years. While the rates have decreased relative to the 2006 figures, preliminary estimates of the 2021 poverty statistics show a significant 30.6 percent uptick of households falling below poverty line.

Both LGUs saw a decrease in their poverty incidence rates from 2006 to 2018. Pola's poverty incidence declined by 27 percent, bringing the large figure of 41.9 to only 14.9 percent. However, the 2018 number is still twice the rate of Calapan City which rounds to seven percent.

Figure 3. Poverty incidence (%) in MIMAROPA and study sites, 2006-2018



Source: PSA Poverty Statistics and Poverty Small Area Estimates (SAE), various years

Notes: (a) **Fishermen** refer to employed individuals 15 years old and over whose primary occupation is fishing. (b) **Poverty incidence** among fishermen refers to the proportion of fishermen (belonging to poor families) with per capita income less than the per capita poverty threshold to the total number of fishermen.

ANNEX C
Timeline of Government Response to Oil Spill

Date	International	National	Local
February 28, 2023		<p>MT Princess Empress tanker is carrying 800,000 liters of industrial oil from Limay, Bataan to Iloilo.</p> <p>The tanker was slammed by strong waves near Tablas Island, capsizing off the coast of Naujan, Oriental Mindoro.</p>	
March 2, 2023		<p>The tanker submerged two days after as reported by the Philippine Coast Guard (PCG).</p>	
March 3, 2023		<p>The oil spill affected the following municipalities: Mansalay, Pola, Pinamalayan, Gloria, Bansud, Bongabong, Roxas, Naujan</p> <p>DENR and MSI aerial surveillance and site assessment</p>	<p>Fishing ban imposed by provincial government to eight towns</p>
March 3, 2023		<p>Oil spill patches reached Semirara Island in Caluya town.</p>	<p>PCG Western Visayas deployed 15 officers under Marine Environmental Protection Unit to Libertad, the nearest jump off to the island. Oil spill mitigation made use of floating assets and equipment like fence booms and oil skimmers. Mechanical recovery was also used where personnel manually scoops the oil.</p> <p>Coordination secured with OCD, Regional DRRMO, and Antique Provincial DRRMO</p>
March 4, 2023		<p>DSWD activates a cash-for-work programme until May. It will pay PHP 355 for 15 days to those assisting in clean-up operations. The programme is budgeted around PHP 84.4M pesos for 14,000 participants.</p>	<p>Pola municipal council declares state of calamity</p> <p>Communities report during KIIs and FGDs conducted in April 1-3 that they have not been compensated yet for spill booms since March.</p>

March 6, 2023		Tanker spotted 7.5 nautical miles from Balingawan Point, facing Pola Municipality	
March 8, 2023	Japan announces that it will send a Disaster Relief Expert Team on oil removal and control to support ongoing efforts (Reference)	Marcos says in a statement that "cleanup will take less than four months"	Floating oil spill boom deployed by PCG in Pola to contain the oil slick
March 8, 2023		DSWD relays that the locals will be trained by DENR as early as March 8 for the cleanup effort (Pasion, 2023) DA-BFAR commits initial allotment of PHP 4M for post-harvest training and equipment. This refers to ten (10) units of smokehouses for fish processing through fisherfolk associations and cooperatives. (BFAR Bulletin)	
March 14, 2023		Committee Hearing on Environment, Natural Resources, and Climate Change Senator Escudero appeals to OCD-NDRRMC to revise calamity fund guidelines for oil spill assistance (Senate Press Release)	
March 16, 2023			Oil spill reaches the shores of Calapan. Oil slick traces first spotted along shorelines of Navotas and Maidlang.
March 19, 2023			Calapan local government lifts fishing ban
March 21, 2023		BFAR urges continuous fishing ban	
March 25, 2023			Calapan City Council declares state of calamity to 23 barangays: Balite, Baruyan, Calero, Canubing I, Gutad, Ibaba East, Ibaba West, Lazareto, Mahal na Pangalan, Maidlang, Masipit, Nag-Iba I, Nag-Iba II, Navotas, Pachoca, Parang, Salong, San Antonia, Silonay, Suqui, Tawagan, Tibag, Wawa

March 31, 2023			Special Session of Provincial Council of Oriental Mindoro State of Calamity declared by province to 78 barangays in Naujan, Pola, Pinamalayan, Gloria, Bansud, Bongabong, Mansalay, Roxas, Bulalacao
April 20, 2023		Relief packs from DSWD and Senator Risa Hontiveroz distributed to 1,137 families in Barangays Pachoca, Ibaba East, Ibaba West, Tibag, San Antonio, Calero, Lazareto (Calapan City PR)	
April 20, 2023		Payout for Assistance to Individuals in Crisis Situation (AICS) headed by Senator Loren Legarda Initial payout of PHP 2,000 to 300 beneficiaries from Barangays Silonay and Maidlay, additional 200 families from other barangays in Calapan City Relief packs worth PHP 500 distributed to 1000 families (barangays not disclosed) (Calapan City PR)	

April 24, 2023		<p>Launching of TUPAD Training Cum-Production with Calapan City and Oriental Mindoro Provincial Government, DOLE, TESDA, and DOT.</p> <p>TUPAD or Tulong Panghanapbuhay sa Ating Disadvantaged/Displaced Workers is a community-based package of assistance that provides emergency employment for displaced workers, underemployed and seasonal workers, for a minimum of 10 days but not exceeding 30 days.</p> <p>Types of work included in the program are social community projects (repair and maintenance of public facilities and infrastructure), economic community projects (repair and maintenance of farm to market roads, markets, ports), agro-forestry community projects (tree planting, seedling preparation, reforestation).</p> <p>Details of TUPAD to be implemented was not divulged in the press release. (TUPAD page) (Calapan City PR)</p>	
April 25, 2023	<p>Fourth meeting of the inter-agency task force on oil spill at DOJ</p> <p>International Oil Pollution Compensation (IOPC) Funds offers settlements to affected communities and compensation to government for clean-up operation based on their fact finding mission.</p> <p>IOPC says compensation claims are still being gathered. (Ayalin, 2023) (IOPC website)</p>	<p>Provincial government sets up a Claims Caravan to every barangay. This is described as a one-time payment of PHP 15,000 regardless of extent of damage.</p>	<p>Barangay LGUs share their decision to opt out of Claims Caravan. The claim form contains a waiver that will prevent the communities from filing charges.</p>
End of April		<p>OCD-NDRRMC to release revised Memorandum Circular 45 s. 2017</p>	
2026		<p>Deadline of claims from IOPC: February 28, 2026</p>	

Source: Authors' compilation

